HEMMED IN: THE GEOGRAPHY OF ORGANIC FAIRTRADE COTTON IN BURKINA FASO

BY

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THESIS

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Abstract

Conventional cotton growing in Burkina Faso is unsustainable. It is characterized by low incomes for most smallholder growers, dependence on expensive agro-chemical inputs, and male bias across the sector. By contrast, the Helvetas organic cotton program in many cases improves rural livelihoods through higher incomes, provides more equal opportunity (especially for women), and follows sustainable farming practices. However, only a small number of farmers have been able to participate in the organic program and the total area and production of organic cotton is quite small.

Based on primary and archival research conducted in Burkina Faso in July and August of 2010, this Master's thesis investigates the factors constraining the organic cotton program's expansion in Burkina Faso. Its thesis is that the program's limitation stems from the geographic zoning and monopsonistic governance structure of the cotton sector, in which three companies control cotton production and marketing in their own zones. Consequently, the organic cotton program operates under the auspices of the cotton company that controls the particular zone, and it is dependent on the good will of each cotton company to allow this alternative development to occur within its zone. Since these companies' profits derive from conventional - and, recently, genetically modified – cotton, their support for lower-yielding organic cotton is limited. In addition, the recent introduction of genetically modified cotton further jeopardizes the viability of the organic option, as concerns over contamination of organic cotton by genetically modified varieties limit the organic fields to islands of organic production beyond the reach of many willing producers. The organic option is, in essence, hemmed in by the jurisdictional control of cotton companies and the agroecological threat of genetically modified and conventional cotton contamination.

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Introduction

Cotton production is central to the livelihoods of most rural households in southern Burkina Faso (OECD 2006; Gray 2008). Generally produced by smallholder farmers with household labor, cotton has helped shape the social, political and economic processes in the daily rhythm of Burkinabé life. From 1981 to 2003, the total area under cotton production rose from 74,000 to 406,000 hectares (Gray 2008). Rural incomes are therefore largely shaped by the seasonal cotton yield and market price. World market prices for cotton do not necessarily translate into proportional gains for producers (IDEAS Centre).[1]

Conventional cotton growing relies heavily on costly agro-chemical inputs that leave producers indebted to the cotton companies, encourages ecologically questionable farming practices, and promotes a strong bias in favor of male cotton producers through extension services and access to credit. Under structural adjustment mandates from the World Bank, efforts to privatize the sector through the creation of three regional monopsonies, or sole cotton buyer per region, have not addressed these fundamental problems – problems that leave most producers with low incomes and often in debt. Yet the country has become the leading cotton lint producer in sub-Saharan Africa, which reinforces the narrative advanced by international financial institutions that declares cotton production in West Africa a "Success Story" (World Bank 2004).

Organizations in Mali, Benin and Burkina Faso have introduced organic fairtrade cotton programs to address income and equity concerns and more socially responsible tastes of consumers in the North and smallholder farmers in the South (Dowd 2008; Helvetas 2004a, b). Although niche markets are more sensitive to market fluctuations, demand is increasing for products that boast environmentally sound practices and fairtrade ideals like that of Burkinabé organic fairtrade cotton. Likewise, smallholder producers in the South clamor for more transparent and fair cotton price determinations, yet their incomes often stagnate (Bassett 2001; 2008). The organic programs in Burkina Faso and neighboring Mali, in operation since 2004 and

[1] Between 2007 and 2011, the price for the highest quality seed cotton in Burkina Faso went from 145 Fcfa ($0.29) to 182 Fcfa/kg ($0.36), an increase of 25% (Barry 2007; UNPCB 2010). During the same period the price for Upland Cotton lint in the US increased from $1.29/kg in 2007 to $4.18 in 2011, an increase of 224%.

2002 respectively, operate under the direction of Helvetas, a Swiss non-governmental organization (NGO). Helvetas and cotton-buying partners bear the cost of certifying the cotton.

Since 2004, an annual average of 2,700 smallholders in Burkina Faso have engaged in this initiative to produce cotton that is doubly certified as organic *and* fairtrade. The price these farmers receive includes a fairtrade base price above the conventional cotton in addition to a double certification premium. This organic fairtrade program in Burkina Faso promotes fairtrade standards including, but not limited to, equal representation of women, ensuring that women growers receive payments directly; cultivation and marketing of other crops so as not to rely solely on cotton income; and implementation of integrated crop and pest management to protect health and the environment (FLO 2009; FLO 2008). The potential benefits of organic fairtrade cotton include improved rural livelihoods through higher incomes, improved health due to the absence of harmful and expensive chemical inputs, and equal opportunity for participation (Dowd 2008; Bassett 2010b). These benefits are arguably important for women's health and potentially contribute to opportunities to use their new economic leverage to improve the well being of their household (Bassett 2010b).

On a macroeconomic scale, these fairtrade and organic schemes are poised to highlight the exceptional quality of West African cotton and to answer the growing demand for socially responsible consumer behavior, as well as to potentially increase the base price for the region's wider cotton sector (Bassett 2010b).

Despite the support of an NGO and the high level of interest of rural producers in organic cotton production, there is a disconnect between grower demand for market entry and the ability to take up such production. This thesis presents the reasons behind this disconnect. It does so using a political ecological approach to frame its research questions and its underlying assumptions about the relationship between political, economic, and social factors contributing to local realities. Its most fundamental question is therefore:

> *How do the political-economic dynamics of cotton production in Burkina Faso influence the ability of small-scale growers to produce organic cotton?*

This research follows primary and archival research conducted in July and August of 2010 in Dano, Burkina Faso, which is one of the three pilot organic zones that Helvetas initiated.

This research will present the factors that impede organic cotton's development by addressing the following questions:

1. Why does the high demand to grow organic cotton not translate into equally high participation rates by smallholder farmers?
2. How does the zoned governance structure of Burkina Faso's monopsonistic cotton sector constrain the opportunities of farmers to grow organic cotton?

The overarching thesis of this research is that the program's limitations stem from the geographic zoning and monopsonistic governance structure of the cotton sector, in which three companies control cotton production and marketing in their own zone. A monopsonistic governance structure exists when a firm is the sole buyer of a raw material (e.g. cotton), and it faces no competition from other buyers. Burkina Faso's cotton sector is divided into three regions, each of which has one cotton buyer that also provides credit, input and extension services. The political economic realities of the cotton sector restrict the expansion of organic cotton to certain areas because the new schemes can only expand as much as the institutions in which they operate will permit. Since these companies' profits derive from conventional – and, recently, genetically modified (GM) – cotton growing, their support for the lower-yielding organic cotton is limited. Additionally, the recent introduction of genetically modified, or Bt[2], cotton further threatens the viability of the organic option. While organic farmers are concerned with contamination of their fields from Bt cotton, cotton companies are compelled to expand the more profitable conventional and Bt cotton. Together, these political economic conditions limit the organic program to islands of organic production where it is unable to reach many willing smallholder producers. Thus the organic cotton program is essentially 'hemmed in' to these islands of production and ultimately rests under the control of these three companies.

This research takes a political ecology approach to investigate these limits to organic cotton growing in Burkina Faso. Political ecology seeks to understand the political dynamics surrounding material and discursive struggles over the environment, where any changes in environmental conditions are seen to affect the political and economic status-quo (Bryant 1998;

[2] The term Bt refers to Bacillus thuringiensis, the specific 'genetically modified' (GM) trait that is characteristic of a patented genetically modified cotton.

Bryant and Bailey, 1997). The lens of political ecology enables an investigation of the political and biophysical dimensions of the interaction between the conventional and the organic cotton sector that explain why there is greater demand to grow alternative, organic, cotton than there is realized participation in the project.

The following chapter (Chapter I) presents background to the case study and discusses the theoretical framework that frames the research. The background section first focuses on the history of cotton cultivation in Burkina Faso and West Africa – in particular how dependency on cotton has compounded social inequalities and unsustainable environmental practices of conventional cotton. The theoretical framework summarizes the commodity chain governance types that apply to the Burkinabé cotton sector and introduces conventions theory, both of which will frame the argument. The next section will discuss how the realities of the conventional cotton sector have contributed to higher smallholder demand to produce the organic cotton alternative and the challenges it also faces. Chapter II applies the theoretical framework to the special case of the organic and fairtrade cotton supply chain using examples from fieldwork and archival research. Chapter III presents the findings and results of the case study findings, followed by some conclusions and suggestions for the future of the program.

Chapter I – Background and Theoretical Framework

This chapter presents the historical, agroecological and political context in which the organic cotton program operates. The first section discusses the historical context of the cotton sector privatization and the implications it has had on farmer indebtedness and environmental health. The poor prospects for many Burkinabé, along with other West Africa cotton growers generated an opportunity to initiate an organic cotton program in hopes of improving rural livelihoods. However, the Helvetas organic program has met with significant ecological and political challenges. The second section engages with the literature on commodity chain governance as a way to think about which actors control access to commodity chain processes. This second section introduces a theoretical framework for understanding how the zoned governance of Burkina Faso's cotton sector permits cotton companies to hold authority over land on which cotton is produced. The last section presents the agro-ecological constraints of organic agriculture lying in a sea of conventional and increasingly GM cotton.

Burkinabé cotton: a superficial success

The cotton economy has experienced a boom in West Africa. The region's cotton production makes up over 15 percent of the world cotton market (Moseley and Gray 2008), a reality that has had tangible benefits – and equally tangible drawbacks – for the livelihoods of smallholder producers in the region.

The processes that have brought the West African cotton industry to where it is today have involved a series of pushes and pulls among stakeholders in the sector: smallholding farmers who protest for better prices (Bassett 2001); cotton companies who have been accused of pursuing unfair pricing tactics (Bassett 2008); and international financial institutions (IFIs) that have driven the privatization of the cotton sector (Bassett 2008; Moseley 2008; World Bank 2004). The conflicts among these actors are the product of an unsustainable system of institutional rules and regulations that have resulted in the indebtedness of smallholders and threatened the viability of livelihood-sustaining cropland. At the same time, however, the West African cotton sector has been hailed as one of African agriculture's major successes, as

evidenced by improved and expanded production (Gabre-Madhin and Haggblade 2004; World Bank 2004).

The story of cotton production in Burkina Faso is emblematic of regional debates and dynamics. In the years following Burkina's independence in 1960, the French textile company *Compagnie Française pour le Développement des Fibres Textiles* (CFDT) established what evolved into a highly integrated commodity chain, providing farmers necessary credit and inputs (e.g. fertilizer, insecticide, cotton seed) (Bassett 2008). From the mid 1980s through the 1990s, CFDT's subsequent partnership with and support of the parastatal cotton company, Sofitex, facilitated an arrangement through which the latter was able to take charge of cotton transport, ginning, marketing and management of all cotton growers in the country (Padeco 2006). The rise of Sofitex created an influx of resources for Burkina's cotton sector, including *Groupements Villageois* (GVs), which provided services through which farmers could obtain loans and access necessary inputs (Gray 2008). Since 1994, Burkinabé cotton production has increased dramatically, and it is currently the leader in sub-Saharan Africa.

However, these developments were accompanied by a growing dependence on cotton as the single source of income for many farmers, who have been increasingly at the whim of global markets – markets flooded by subsidized cotton from richer, primarily Western countries (Bassett 2008, Moseley 2008). The negative implications of such dependence on the world market price became clear particularly during the 1990s, a tumultuous decade for cotton producers amplified by the devaluation of the West African currency (CFA) and culminating with a devastating and unsuccessful 1996/97 growing season and the dissolution of the GVs due to high farmer indebtedness (Gray 2008).

Beginning in 1998, export-focused structural adjustment programs (SAPs) advanced by international financial institutions pushed Burkina Faso to begin the privatization of its cotton industry. The process was slow due to difficulties in solidifying a system of credit to farmers in the absence of a guarantee that Sofitex would buy the seed cotton from the farmers (PADECO 2006; Campbell, *et al* 2007). As a result, in 2004, a SAP drove the country to split into three geographic zones, each under the jurisdiction of one cotton company: Sofitex in the southwest, managing 80 percent of the sector, Faso Coton in the central region, and Socoma in the east (PADECO 2006; Campbell, *et al* 2007). The concept of creating a monopsony for each zone

resembles the parastatal Sofitex model that privatization purportedly sought to replace. Before privatization, Sofitex acted as the sole buyer in Burkina Faso. Today, three companies currently act as the sole buyer in their respective zone. However, in the zoned system, reliable supply of and access to services such as agricultural extension, inputs, credit, and transportation, may be more easily disrupted, less efficient or exclude some growers whose livelihoods depend on cotton (Campbell, *et al* 2007).

For Burkinabé smallholders, staying out of debt continues to depend on the ability to repay debts incurred to access inputs obtained on credit – primarily through cotton income. Success of smallholders' cotton crop is mainly contingent on an adequate amount of rainfall at the right times (Gray 2008). Given the elevated risk and indeed history of drought and late rains in the region, such variability has proved disastrous in some years. Such years put smallholders far behind in their repayments to creditors, extending their period of repayment and increasing their rates of interest owed. The absence of consistently favorable weather conditions is likely to result in unpredictable cotton incomes, and a resulting loss of social mobility for farmers due to perpetual indebtedness to creditors. In order to compensate, farmers are compelled to forego fallowing fields to increase production, which results in a debt of nutrients for the soil (Gray 2008). Efforts to raise producer incomes and encourage diversification are necessary to exit from the debt spiral.

Indeed, one of the objectives of Burkina's privatization strategy was to improve yields and expand production. While the strategy recognizes the possibility of soil degradation, advice from conventional cotton extension agents rarely concentrates on sustainable farming techniques. As a result, privatization has not sufficiently addressed the effects of intensification on soil quality. Exacerbating this, farmers increasingly find it too costly to fallow their fields (thereby reaping no income from those plots), which deepens farmer indebtedness resulting from the cycle of buying inputs on credit in order to pay off previous years' debts (Dowd 2008; Gray 2008; 1999; Camara, *et al.* 2000). Moreover, as Gray (1999) notes in her research into the dynamics of land degradation in Burkina Faso in the 1990s, when farmers have limited access to resources or sense limited land availability, they typically respond by intensifying their farming practices and foregoing fallowing. Although field tests showed no empirical evidence of soil degradation at the field level, Gray's research nevertheless affirms that fallowing undoubtedly improves soil quality and nutrient content. Similarly, in neighboring Mali, Kidron, *et al* (2010)

found that the combination of intensified use of inputs and insufficient fallowing would contribute to a steady decline in soil organic matter that would render cotton cultivation economically unviable in about two to three decades. To regain healthy soil, the authors recommended restorative farming practices including field rotation and fallow periods. Likewise, in Mali, Moseley's research (2005, 2008) has found that cotton production, carried out intensively, is problematic for the long-term prospects of the whole farming system, and he recommends moving toward production of a larger diversity of (sustainably produced) cash crops so that producers have more livelihood options.

In response to persistent farmer indebtedness and the unsustainable nature of the cotton sector generally, Helvetas, a Swiss non-governmental organization, initiated the organic cotton program in Burkina Faso in 2004. The organic Helvetas program adds to a fairtrade program that GeoCoton, a French textile firm (formerly CFDT and Dagris), began in 2003. This research focuses primarily on the Helvetas fairtrade organic program. Burkinabé farmers have been attracted to the organic fairtrade double premium[3] they receive for the cotton, as well as the additional benefit of requiring fewer costly inputs; thus this option was attractive. Indeed economics seems to be on their side: the price of organic cotton can be nearly double that of conventional cotton (Bassett 2010b). Yet Burkina Faso's organic cotton initiative remains so small as to be dwarfed by the conventional sector's dominance due to cotton sector governance and agroecological challenges. The following sections explore the implications of both of these.

Theoretical framework

The promise of organic cotton in Burkina Faso which is as an alternative to conventional cotton is undermined by the regulatory system designed to benefit the conventional cotton companies at the expense of producers. This section lays out the conceptual framework of the 'hemmed in' argument using concepts from the literature related to commodity chain governance: which firms have control over the alternative product and how they wield that

[3] The first premium in the 'double premium' for organic fairtrade cotton is the fairtrade minimum price specific to organic crops (the fairtrade minimum price for solely fairtrade products is slightly lower). The second premium is "the development premium" paid to fairtrade farmer cooperatives for purposes of development (Bassett 2010b; FLO 2008).

control. In later sections, the framework will discuss the tensions that have crept up around keeping the conventional and organic cotton commodity chains separate.

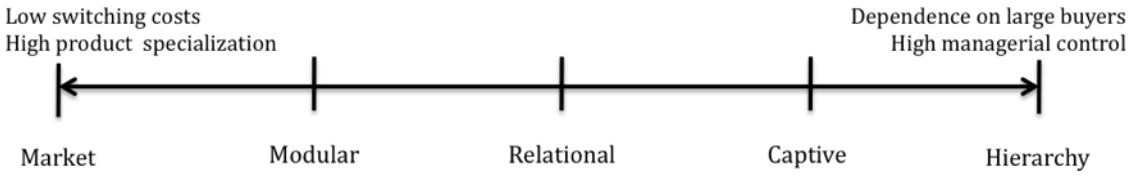
Global commodity chain analysis is useful to explain how actors, from primary production to end consumer, distribute profits and control resources (Gereffi 1995; Gereffi & Korzeniewiez 1994; Gereffi, *et al* 2005; Raikes, *et al* 2000; Ribot 1998). The approach can be characterized as "a tool for understanding who benefits from natural resources, how they benefit, and how those patterns of benefit distribution might be changed" (Ribot 1998: 308). Those agents that 'drive' or direct the vertical coordination of the chain are associated with higher power, and control the mechanisms that increase sales, reduce costs and move the product through the chain more quickly (Daviron and Gibbon 2002). Central to this analysis is the examination of who controls access to commodity chain processes and how the contractual and social linkages operate within it. Ribot (1998) and Gereffi, *et al* (1994) elaborate that social and hierarchical relations have important influence on the entire commodity chain wherein they determine who has market access and how assets are distributed.

With global commodity chain analysis, Gereffi, *et al* (2005) have developed a typology that describes the governance of network relations, or the rules and practices that primary actors follow within larger market systems. The authors define five types of value chain governance that can be conceptualized as situated on a continuum ranging from *market* to *hierarchy*. The five types of commodity chain governance are illustrated in the diagram in Figure 1, which presents each governance type along a continuum ranging (at left) from equalized to (at right) asymmetrical power relations within a commodity chain.

Market-based governance is characterized by a low degree of power asymmetry between suppliers and end-users. This means that no single supply chain actor has control over the other supply chain actors. *Market chain governance* refers to free market interactions in which suppliers (producers) can switch to new buyers easily and buyers respond to prices and specifications of a seller's product. At the opposite end of the commodity chain governance range, hierarchical-based governance has the highest degree of control over the commodity chain concentrated in one lead firm. *Hierarchical governance* refers to a governance structure where a lead firm explicitly coordinates and controls the actors and the interactions along the commodity chain.

The full list of governance types includes *market*, *modular*, *relational*, *captive*, and *hierarchy* governance. *Modular governance* reflects an arrangement of production relationships that can efficiently cater product specifications to consumers' needs – for example, when retailers or intermediaries switch to suppliers that answer their specific demands. Unlike market governance, the suppliers in a modular chain may also invest in specialized assets in order to meet the customer's demands. *Relational governance* lacks efficient avenues to specify a product to the end user's needs, and transactions between suppliers and end users are more complex than in modular governance. This is because the relational value chain includes not just price and specifications but reputation, trust and mutual dependence and direct information and contact between end users and suppliers. *Captive governance* value chains occur when many product specifications exist; transactions between actors are also complex. In this case, when suppliers lack the capacity to specify their products to the end user's needs, the lead firm intervenes and controls the transactions so as to capture all the profit.

Figure 1: Type of commodity chain governance based on Gereffi, *et al* (2005)



The typology described here is useful to delineate the networks that influence control over the wider Burkinabé cotton sector and an alternative product like organic fairtrade cotton (see Raynolds and Wilkinson 2007). Since the 1950s, when the *Compagnie Française pour le Développement des Fibres Textiles* (French textile development company, or CFDT) controlled cotton production in the region through a *hierarchical* value chain, the Burkina Faso government has kept those integrated control networks in place. Over time, Burkina Faso's conventional commodity chain grew inefficient and corrupt (Kaminski 2003), lending to an opaque governance structure where many growers feel disempowered. Despite World Bank-initiated privatization of the sector, the country has retained this *hierarchical* form of governance in which the former state-owned company and two private companies wield extensive control over the cotton commodity chain in the form of single-buyer zones, or monopsonies. In contrast, the Helvetas organic fairtrade cotton program demonstrates how international (Helvetas) and national (UNPCB) actors are attempting to weave an alternative governance structure through

direct marketing of organic cotton, to challenge conventional cotton's opaque governance. The Helvetas-UNPCB partnership represents a special case of *captive* and *relational* governance because of the fairtrade principles it follows and the stronger voice it gives farmers.

Convention theory (Allaire and Boyer 1995; Wilkinson 1997) examines the norms, rules and "conventions" that form the basis of market relations. Within this framework, fairtrade commodity chain networks are rooted in principles of trust and attachment to place (Raynolds 2002). This is what Murdoch, Marsden and Banks (2000) call the *domestic* and *civic* 'conventions' in their presentation of the types of motivations that drive commodity chain actor decisions. Niche market consumers buy fairtrade goods at a premium because they respond to their more socially responsible norms typical of relational chain governance rather than the profit and efficiency-driven norms, or the *commercial* and *industrial* conventions (Raynolds and Wilkinson 2007), of conventional commodity sectors. Yet fairtrade movements eventually come to face pressure to conform to the industrial and market conventions as they become more popular and mainstream (*ibid*). As a result, captive governance typifies this shift toward a higher power asymmetry in fairtrade product network relations. If this happens, the programs no longer challenge the norms that have put smallholder cotton growers at a disadvantage. The case of Burkina Faso's organic fairtrade cotton program is unusual in that it was born captive to the conventional commodity chain. Only after perturbations did the program begin to challenge its captivity and shift toward relational chain governance.

The hypothesis of this research is that the limited development of the organic option is linked to the monopsonistic hierarchical governance structure of cotton in Burkina Faso in which just three companies (Sofitex, Faso Coton, and Socoma) control cotton production for the entire country. Due to the agroecological and political-economic dynamics that interact and affect the geography of organic cotton, the Helvetas initiative remains an extremely small niche market[4] with little possibility of expansion. The organic cotton sector is dependent on external market forces and, by extension, on consumers who demand socially and environmentally responsible products, on continued financing from international NGOs, and on the all-important but not guaranteed cooperation and good will of the three cotton companies.

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[4] The organic fairtrade cotton program in Burkina Faso produces less than one percent of the total cotton output for the country.

The next section turns to the agroecological dimension of this organic fairtrade initiative. The presentation of organic fairtrade cotton's obstacles shows how cotton companies keep the program hemmed in.

Organic cotton: agroecological challenges

The introduction of organic cotton schemes has continued to attract an increasing number of participants. However, the Helvetas program faces technical and financial challenges. These include challenges to producers in obtaining certification and procuring farm equipment; animal traction, and the necessary organic inputs; and challenges for the wider organic cotton sector in supporting the training of enough extension workers in order that the holistic goals of organic agriculture are achieved. Add to these the introduction of genetically modified cotton, and the organic cotton initiative is facing many impediments to its expansion.

Certification

Certification remains a primary obstacle for smallholders. The cost of organic certification is unrealistic for most smallholders in Burkina Faso. Instead, it is the coordinating NGO, Helvetas, and its partners and buyers in the North that foot the cost, which can amount to 20 to 50 percent of the product's value (Helvetas 2004a; Dowd 2008; Ton 2002).

The standards for certification pose another, agroecological challenge. The international requirements entail a minimum conversion period of two years when the field is either left fallow or grown without synthetic fertilizers and insecticides (Neuendorff and Sabel-Koschella 2001). If farmers have the option to cultivate organic cotton on a plot that previously grew untreated subsistence crops, they will receive the premiums in their first year. However, certification is also contingent on the geographic location of an organic field relative to conventional fields. Extension agents advise organic producers to plant a high growing crop like corn between organic and Bt fields to detract pollinators from contaminating the organic plant. Regulations also stipulate that an organic cotton field must not be within 100 meters of a non-organic cotton field and it must be at a higher elevation than cotton fields so that runoff from chemical fertilizers or pesticides will not contaminate it (FLO 2009). Any use of inorganic materials in a cotton field is also a means for declassification. In the course of the 2010/2011 growing season, 152 of 874 producers in the Dano research site were declassified for failure to meet certification

requirements – either through unfortunate geographic location, use of prohibited materials or the more rare instances of malicious intent to game the system.

Procurement of equipment and animal traction

Procurement of farming equipment and animal traction is a second obstacle to participating and prospective farmers. Organic growers need good quality organic matter, which they make over a period of months in compost pits. Ingredients that go into the process include substantial amounts of (usually cattle) manure and other animal products like poultry feathers. While farmers can make compost without the benefit of animal manure, the amount they produce is a factor that limits their plot size. Most, but not all, of the farmers interviewed during fieldwork had at least two oxen. Initial field observations indicate that growers with animal traction more readily take up organic cotton production. The ability to transport the compost to spread over the field is also important; a cart or wheelbarrow makes the work go much more quickly and is less strenuous. Similarly, animal traction – usually oxen – allows growers to till larger land areas in a fraction of the time, which enables farmers to cultivate more organic cotton. However, organic inputs – including compost, manure, and organic neem pest control – are often not widely accessible, and the absence of such inputs typically results in lower yields (Bassett 2010b, Helvetas 2006). To combat this obstacle, as Dowd (2008) elaborates, organic growers who own oxen in Mali have built cattle corrals that house the livestock next to their organic plots in order to conserve organic manure, a practice also advised in Burkina Faso.

Lack of trained extension agents

A third obstacle for the organic program in Burkina Faso is the lack of trained extension agents who are able to advise growers on techniques for making compost, on how to properly and most effectively apply the organic inputs, and how to build anti-erosion barriers. The extension model involves an extension agent's visit to each grower's field at least once during the growing season. The number of growers per single extension agent has hovered between 150 and 200 in the three seasons between 2008 and 2011. During their field visits, agents collect agricultural and household demographic information such as number of women and men in the household, age, and literacy. They also map the smallholder's agricultural plot(s) with the aid of a GPS unit. This information plays a large role in the certification process. During other times of

the year, the agents advise growers in cooperative meetings. Training and hiring enough extension agents can be costly for projects, but it has been shown that a lower ratio of growers to extension agents is associated with higher yields (Dowd 2008). With nearly 200 growers per agent in some seasons, there is tremendous pressure on agents to complete all the grower surveys and attend other necessary cooperative meetings. The result is that many organic extension agents are pressed for time and when delays occur, as is inevitable, it can be difficult to recover and tend to the needs of all 200 producers. In stark contrast to the ratio of Organic extension agents is that for the conventional cotton sector. According to Macrae (2002), one extension agent can oversee up to 50 GPCs. A modest average size of each GPC is 25 growers, which gives a ratio of up to 1,250 farmers per extension agent. As a result, the model of extension is quite different for conventional cotton, where agents convene meetings of multiple cooperatives, but do not visit each grower's field individually. Speaking to the disadvantage of the conventional model, one conventional cotton grower, Hiem Ziem[5], in an interview said that conventional extension agents rarely advise growers on agricultural practices anymore; they only encourage them to plant (more) cotton (personal communication, 26 July 2010).

Maintaining acceptable standards

A fourth, more complex, obstacle relates to the soil quality of entire farms and communities, rather than just an isolated organic plot. One of the foremost goals that proponents of organic agriculture advance is to support a system that provides benefits to the whole farming system, promoting healthy and restorative farming practices on both the organic and conventional fields (Dowd 2008; Pretty 1995). However, in order to get the highest possible organic yield, some farmers opt to concentrate all their (organic) inputs on the organic plot, leaving insufficient fertilizer or compost for the rest of the farm (Dowd 2008). This is detrimental to the farm-scale soil quality and propagates unsustainable farming practices (Pretty 1995). If these obstacles are met with practical solutions and, importantly, a rising consumer demand for organic cotton, the outlook for an expanding organic cotton sector is positive. Indeed, a brief period of low consumer demand in 2009 motivated the cotton company Faso Coton to terminate its contract with the cotton producer's union that manages the organic

[5] All farmer names in this manuscript have been changed to protect the identity of those involved.

program; the demand has since bounced back. Even accounting for the delicate consumer demand in this niche market, organic cotton's outlook in Burkina Faso is also contingent on adequate institutional capacity, good governance, and sufficient funding. Indeed, it is unlikely that organic cotton projects would continue to attract interest without the price premium paid to farmers, primarily because organic cotton yields are, on average, half that of conventional cotton yields (Dowd 2008; Helvetas 2007a). The incentive lies in the ability to maintain higher premiums for organic cotton coupled with little to no input expenses, and someone else incurring the costs of certification.

Bt cotton competition

The introduction in 2008 of genetically modified (Bt) cotton poses a final and daunting ecological and political hurdle for the organic program. Bt cotton has proved to be a lucrative undertaking for those farmers who can afford the initial outlay of funds to purchase the GM seed. Indeed, the incentive to turn to Bt cotton compared to conventional cotton is quite high.

Between 2004 and 2008, Monsanto, the multinational biotechnology company, worked with INERA, the Burkina Faso government's agricultural research institute, to modify a local cottonseed variety in which they inserted the Bt gene. This patented gene is a toxin to the cotton bollworm, one of the major pests to the cotton plant. This technology comes at a significant cost relative to conventional cottonseeds: nearly eight times as much in 2009. To recuperate that cost, INERA found that Bt cotton growers would need only the two late-season pesticide treatments when using the Bt seed; these sprays attack the secondary, piercing-sucking cotton plant pests appearing later in the season (Vitale, *et al* 2011). The seed's technology enables farmers to forego the four early-season pesticide sprays that normally target the cotton bollworm (Vitale, *et al* 2011). A caveat to this benefit is that many resource-poor conventional farmers opt to apply fewer than the recommended six treatments of pesticides to their conventional field due to limited resources. This suggests that they would benefit less from the reduced need for spraying (Thirtle, *et al* 2003). Glover, *et al* (2010) also note that studies that claim savings on pesticide treatments do not take into account the social factors and number of pests that go into decisions about pesticide treatment regimens. This may introduce variability into the frequency of pesticide treatments that the farmers choose to apply, with corresponding changes in productivity of the crop.

Vitale, *et al* (2010) present a survey conducted during the 2009/2010 season of 160 Bt cotton producers across Burkina Faso. They also compared results of this survey to corresponding data for conventional cotton farmers. The authors found an average gain in yield in Bt cotton of 18.2 percent over conventional cotton. The average Bt cotton yield per hectare in that season for sampled growers was 1,178 kg, which was 181 kg/ha more than the conventional yield of 997kg/ha.

The 160 Bt producers offset their higher seed costs by applying four fewer insecticide sprays. As a result, they profited from the increase in yield. In 2009, the cost of one hectare's worth of Bt seed was 34,750 West African Francs (Fcfa) ($69.50)[6] while conventional cottonseeds cost 4,440 Fcfa/ha ($8.88); yet Bt producers saved 26,290 Fcfa ($52.58) by not applying the four initial sprays[7]. (The average net return per hectare for the 160 Bt cotton producers in this study amounted to 19,500 Fcfa ($39). The authors concluded that conventional cotton producers experienced a net earnings deficit of 11,445Fcfa ($22.89).[8]

Table 1 shows the comparisons for yield, costs and revenues that go into the calculations for net revenue per hectare for conventional, Bt and organic cotton.[9] The organic cotton data comes from a different study (Bassett 2010b) of the benefits of organic cotton. Although available revenue data derives from different surveys with different net profit calculation methods (e.g. one study including cost of household labor in the calculations while the other did not), a comparison can nevertheless be made by breaking down individual cost and revenue components in order to compare the three options from the grower's perspective. Although these

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[6] In the year since the 2009/2010 season, the cost for Bt cottonseed decreased from 33,000Fcfa ($69.50) to 27,000 Fcfa ($54).

[7] This savings assumes that conventional cotton producers were spraying six times and that the Bt producers did in fact spray the two times recommended for Bt cotton). However, in some cases, Bt producers chose to apply pesticide once or not at all, which decreased their yields and therefore limited their net profit.

[8] Both of these return figures reflect the cost of household labor (which was estimated at 750 Fcfa per day ($1.50). Since the head of household does not usually pay for household labor in cash, the negative return does not necessarily mean that the conventional cotton households incurred a financial loss.

[9] The table shows that the average conventional producer had net revenue of 51,330 Fcfa ($102.66) and the Bt producer had a net revenue of 71,000 Fcfa ($148.51) (Vitale *et al* 2010), compared to a return of 136,000 Fcfa/ha ($272) for organic cotton growers plus the organic premium worth 17,000 Fcfa/ha ($34) that the organic producer cooperative receives for community development purposes.

data are missing the major labor component and various equipment costs[10], they nevertheless show that certified organic producers stand to benefit considerably more than Bt or conventional cotton growers.

	Conventional cotton	**Bt Cotton**	**Organic fairtrade cotton**
Average yield	997 kg/ha	1,178 kg/ha	500 kg/ha
Price paid to producer[11]	175 Fcfa ($0.35)	175 Fcfa ($0.35)	272 Fcfa plus 34 Fcfa development premium ($0.54 plus $0.07)
Cost of seeds	4,440 Fcfa ($8.88)	33,000 Fcfa ($69.50)	0
Cost of insecticide	6 treatments of 6,500 Fcfa each: 39,000 Fcfa ($78)	2 treatments of 6,500 Fcfa each: 13,000 Fcfa ($26)	0
Cost of fertilizer	84,145 Fcfa ($168.29)	84,145 Fcfa ($168.29)	0
Net revenue per hectare	51,330 Fcfa ($102.66)	71,000 Fcfa ($148.51)	136,000 Fcfa plus 17,000 Fcfa towards community development ($272 plus $34)

Table 1: A comparison of costs, yields and net revenue per hectare for conventional, Bt, and fairtrade organic cotton in the 2009/2010 season (not including labor costs); Source: compiled by author from Vitale, *et al* (2010) and Bassett (2010b).

Organic cotton incomes per hectare are nearly three times higher than conventional cotton and more than double that of Bt cotton despite the lower average yields in organic cotton production. The higher incomes for organic growers are attributed to needing not to purchase costly inputs since they organically produce their own compost and pesticide from proprietary ingredients. Although the labor component for organic cotton is higher than conventional and Bt cotton when considering the labor involved in production of compost versus the purchase cost of fertilizer for conventional and Bt cotton, organic producers spend less time harvesting a lower yielding field of organic cotton.

The growing threat of Bt contamination

In 2008, the Bt crop amounted to about 8,500 hectares, or 2 percent of Burkina's total cotton area. A year later, in 2009, the amount planted soared to 115,000 hectares, or 29 percent

[10] This is due to the need to compare the least common denominator across each type of cotton production.

[11] The conventional cotton companies pay this amount to the conventional and Bt cotton producers only. The organic fairtrade producers receive payments directly from the end user (retailer) or intermediary (textile firm).

of the total cotton area (ISAAA 2010). In the 2010-planting year, Bt cotton represented 84 percent of the total cotton production area (personal communication, CERFODES director, 7 July 2010). This is in large part due to the promise of higher yields and promotion of the seeds by the three major cotton companies operating in Burkina Faso. Any much higher than that would encourage accelerated pest resistance to the Bt gene due to the lack of refuge zones. The purpose of the refuge (also called buffer) zones is to promote genetic mixing of more resistant pests with more susceptible ones. The results for the long-term effectiveness of the Bt cottonseed around the world, however, are inconclusive with regard to the growing resistance of the cotton bollworm to the toxin in the Bt seed (Monsanto 2010; Jebaraj 2010; Business Standard 2010). In a two-year study in South Africa, Thirtle, *et al.* (2003) expressed some caution in championing Bt cotton's potential because its implementation there was too recent to determine evidence of cotton bollworm resistance to the Bt gene or other environmental effects like gene transfers. However the authors did find that the South African Bt cotton farmers produced higher yields, which made up for the higher cost of Bt seed.

Given the rapid expansion of Bt cotton in Burkina Faso, the organic initiative now faces competition and greater threat of contamination by non-organic (Bt in particular) seed from adjacent or nearby plots, which worries some organic producing farmers and extension agents. One such agent noted, "Genetically modified cotton is worrisome because there is no way to completely stop all contamination. You cannot control where the bees go or the wind" (personal communication, organic extension agent, 26 July 2010). The matter of contamination is serious because even the precautions that organic producers take to prevent it are not guaranteed to be 100 percent effective. In fact, buyers now test the organic cotton upon receipt, two to three months after harvest, to assure final consumers that the cotton is in fact organic (personal communication, organic extension agent, 26 July 2010). This new inspection requirement means that the organic producers get paid long after they sell their cotton.

Since it is now the practice of buyers to test the organic cotton for Bt contamination, a review follows of how contamination occurs. The question of contamination begins with an examination of 'outcrossing' among Bt and non-Bt cottonseeds in a process known as pollen-mediated gene flow (PGF). Outcrossing is when unrelated genetic material gets introduced to another genetic line (e.g. the Bt gene can get outcrossed into a non-Bt cotton plant). The cotton plant is produced either through self-pollination or cross-pollination. Natural outcrossing occurs

less frequently through plant runners[12] and physical seed dispersal than by PGF, or the direct pollination by pollinator insects in the area of the Bt field, which is the most important determinant in contamination (Stephens and Finker 1953; Van Deynze, *et al.* 2005; Llewellyn and Fitt 1996; Llewellyn, *et al.* 2007). The presence of the pollinator insect population varies according to the geography and climate particular to that area. Van Deynze, *et al.* (2005) observed that commercial cotton fields in California with low pollinator activity that were surrounded by open space had up to 1 percent PGF at 30 meters (m) away. This decreased dramatically at a distance of 200 m, finding that PGF was less than 0.1 percent. When pollinators were present, PGF increased, but remained under 1 percent at a distance of 9 m. In both instances, Van Deynze found as others have (Kareiva 1994; Llewellyn and Allen 2006; Llewellyn and Fitt 1996) that PGF declined exponentially with distance from the source plot. Any differences in the results depended on the activity and presence in pollinator activity. In Eastern Australia, Llewellyn, *et al.* (2006) also observed that a low pollinator presence resulted in the dramatic drop in outcrossing at a distance greater than 1 m, when PGF was less than .00004 percent (with a 99 percent confidence level). Because the mobility and presence of pollinator insect populations is extremely difficult to contain, this reality poses a large risk of contamination of organic crops by pollinator insects who have previously pollinated at nearby Bt cotton plots.

Another variable that influences the rate of pollen mediated gene flow (PGF) is the type of vegetation that borders the field. In northern Australia, Llewellyn, *et al.* (2007) found that 50 m of bare ground – the bare-ground distance set by the Australian GM regulator – was an insufficient distance for the isolation of GM cotton because the pollinators would fly over that ground and into the conventional plots, unhindered by barriers or other attractive flowers. In that case, 0.3 percent PGF was found. The authors concluded that, generally, Bt fields that were surrounded by a 20 meter buffer of conventional cotton (or other plant) had statistically significant low PGF. Their data, where high pollinator activity played a role, indicated PGF rates under 0.00001 percent. Thus, rather than the 50 m bare-ground buffer, Llewellyn, *et al.* (2007) claim the most effective practice is a plant buffer of 20 m. Van Deynze, *et al.* (2005) conclude in

[12] A plant runner is the stem from a plant that produces cloned plants.

studies from California, Mississippi, Argentina, South Africa and Australia that in distances greater than 30 m, the difference among the PGF data are negligible. Those authors additionally conclude that the greater the size of the field, the less outcrossing that occurs, because edges of fields capture most of the PGF.

Despite these findings, the Fairtrade Labelling Organization (FLO) and Ecocert (the certifying organizations for Burkinabé fairtrade and organic cotton, respectively) enforce a more conservative 100 m buffer requirement in order to mitigate what they consider practical realities of contamination risks. The FLO prefers to err on the side of caution with regard to Bt contamination concerns but also in order to deter runoff of unauthorized materials used on non-organic fields onto organic fairtrade fields (FLO 2008). Its larger concern is that even beyond these tested distances, outcrossing inevitably occurs, however small the probability. Numerous studies have documented this reality. For example, Pleaseants and Wendel (2010) note that researchers have measured transgenic cotton pollen dispersal at the most distant readings taken, 0.6 km, at an average of 0.05 percent PGF. Indeed, absolute containment cannot be reached, which has led Kareiva (1996) to conclude that, while isolation studies serve as a useful reference, if regulations are to address realistic conditions practically, it is necessary to consider protocols for invasiveness assessment and mitigation. Thus, for certification organizations like FLO and Ecocert, it becomes a question of the level of tolerance for Bt pollen flow and contamination. This forces them to mitigate the most relevant agro-ecological factors in the contamination process and set up avenues for enforcement of ideal separation schemes and agricultural practices.

Ecocert and FLO's recommendations for reducing contamination entail a series of measures for certified programs to follow. Small farmer's organizations like GPCBs and the UNPCB extension agents establish and carry out the measures to mitigate contamination and adapt them to their environment. These include saving organic seeds annually; "timing plantings to avoid same pollination times as nearby GMO crops"; planting high-growing crops or other barriers; mapping the areas around the organic plots; implementing a buffer distance; and educating members about avoiding GM crops (FLO 2008: 47).

The combination of the introduction of Bt cotton and the monopsonistic governance structure has combined to create a formidable challenge for Burkina's organic cotton alternative.

Organic cotton will face more than the political-ecological challenges of securing enough inputs and extension agents. It will also face the local and regional political dynamics of the conventional cotton sector, which currently dominates local, regional, and global markets. Moreover, Bt cotton's expansion reflects how and where the conventional ginning firms assert their authority.

The next section outlines the research design to investigate the challenge that organic fairtrade cotton introduces to the conventional cotton sector. This sets up the later discussions that address motives to restrict the organic program in addition to analysis of the unmet demand to participate.

Research Design

Research questions and methods

This research was carried out using qualitative data collection methods to investigate the research questions and test the hypothesis. Primary and archival data was collected during six weeks of research in Burkina Faso with the assistance of students and faculty at the University of Ouagadougou. The following two questions were the focus of the research:

Why does the high demand to grow organic cotton not translate into equally high participation rates? Semi-structured and informal interviews were conducted with UNPCB, Helvetas, and cotton company representatives familiar with the organic program. Interviews with organic grower cooperatives (GPCB) and individual cotton farmers – both conventional and organic – were also conducted during visits accompanied by an extension agent to survey the cotton fields. Interviews with the growers focused on the motivations that guided decisions to participate or not in the organic program, as well as the benefits and challenges of the organic cotton program. During fieldwork at the Dano research site, individual interviews were conducted with 18 cotton farmers – 13 male, five female, and two conventional cotton producers. I observed three GPCB meetings. The first was a board meeting consisting of only the board members – three male and two female. The two other meetings gathered together 16 growers from the Complan village GPCB and 25 male growers from the Tambiri village GPCB. Interviews with two extension agents and three representatives from UNPCB and Helvetas focused on the program's operations, developments and difficulties reaching more producers. A related focus concerned

the reasons Helvetas and UNPCB chose the geographic areas of organic cotton cultivation currently under their service area. Attendance of GPCB meetings and shadowing extension workers proved to be a valuable window into the tasks that must be tended to during the planting season. Archival research produced records of participant numbers, average yields and the number of extension agents.

What are the implications of working in the geographic zones controlled by the three cotton companies? This question seeks to understand how organic cotton is limited by being embedded in the opaque governance of the conventional commodity chain. Semi-formal interviews were conducted with actors familiar with the cotton supply chain, including organic extension agents, the *chef de zone* at the research site, non-governmental and rural development organization representatives, and cotton company directors. A major focus of this research question centered on how control over different stages of the commodity chain is distributed and where certain actors manifest their authority. Interviews with two cotton company officials focused on how they viewed the organic projects within their cotton zone. A focus on commodity chain governance enabled identification of the key links that keep organic cotton tied to the conventional commodity chain and the possibilities for future chain evolution. It may prove difficult to receive the necessary support from current cotton sector policies, governance, or legal frameworks. Inquiries about the viability of setting up an organic cotton company which would compete with the existing conventional cotton companies was an entry point into this line of questioning. Archival data related to the privatization process was also examined to address this area of investigation. The aim was to find if the regulations limit the entrance of additional cotton ginning firms to the three existing cotton companies. Following a brief description of the research site, Chapter II, explores these questions through the case of organic and fairtrade cotton in Burkina Faso.

Research site

The research site is situated in the Department of Dano, which is located in the Ioba province in the southwestern administrative region of Burkina Faso. Dano is characterized by a 'Sudanian' climate type, receiving between 900 and 1,200 mm of annual rainfall. The primary language spoken in and around Dano is Dagara. The population around Dano practices subsistence agriculture, as do 80 percent of households in the country (US Department of State

2011). Located in the western cotton zone of Burkina Faso, the area's main cash crop is cotton, along with minor crops such as peanuts, sesame and Shea nuts. Dano is located in the zone controlled by Sofitex, which markets 80 percent of the total cotton output in Burkina Faso. Dano was also one of the three organic cotton pilot zones created by Helvetas and UNPCB in 2004. It continually produces a large proportion of the total organic crop; in the 2008/09 and 2009/10 seasons, production in Dano accounted for 39 percent of the total organic cotton production.

The sample of cotton producers came from three villages around Dano: Tambiri, Kpai, and Complan. Total sample size was 92 producers. Data from three GPCB were recorded over the course of fieldwork through 18 interviews, three grower meetings, and information obtained from extension agents.

Chapter II – Organic Cotton in Burkina Faso

In 2004, the Swiss non-governmental organization Helvetas partnered with the National Cotton Producer's Union (UNPCB) to introduce their organic cotton initiative to Burkina Faso. The program's genesis spread from similar projects in neighboring Mali beginning two years earlier (Helvetas 2004b; Bassett 2010b). Helvetas and UNPCB, cooperated to introduce the program in three provinces across the country: Banfora, Ioba, and Fada. By 2010, the operation had expanded to seven provinces to include Tenkodogo, Pô, Tapoa and Kayao.

The introduction of the organic program needed the consent of Sofitex, the formerly state-owned cotton company, and Faso Coton and Socoma, the two new cotton companies that emerged from the privatization of Sofitex. In most areas, the organic program actors agreed to initiate the project in areas where conventional cotton production was less developed. This made it easier to obtain immediate organic certification and producers had fewer preconceived notions about producing the cotton in an unconventional manner (personal communication, UNPCB representative, 9 July 2010). Figure 2 shows the area controlled by three cotton companies and the locations where organic fairtrade cotton is an option for producers. As will be discussed later in the chapter, the regions of Pô and Tapoa have had to discontinue their organic cotton operations, but they still exist in the organic fairtrade program thanks to marketing of other organic crops.

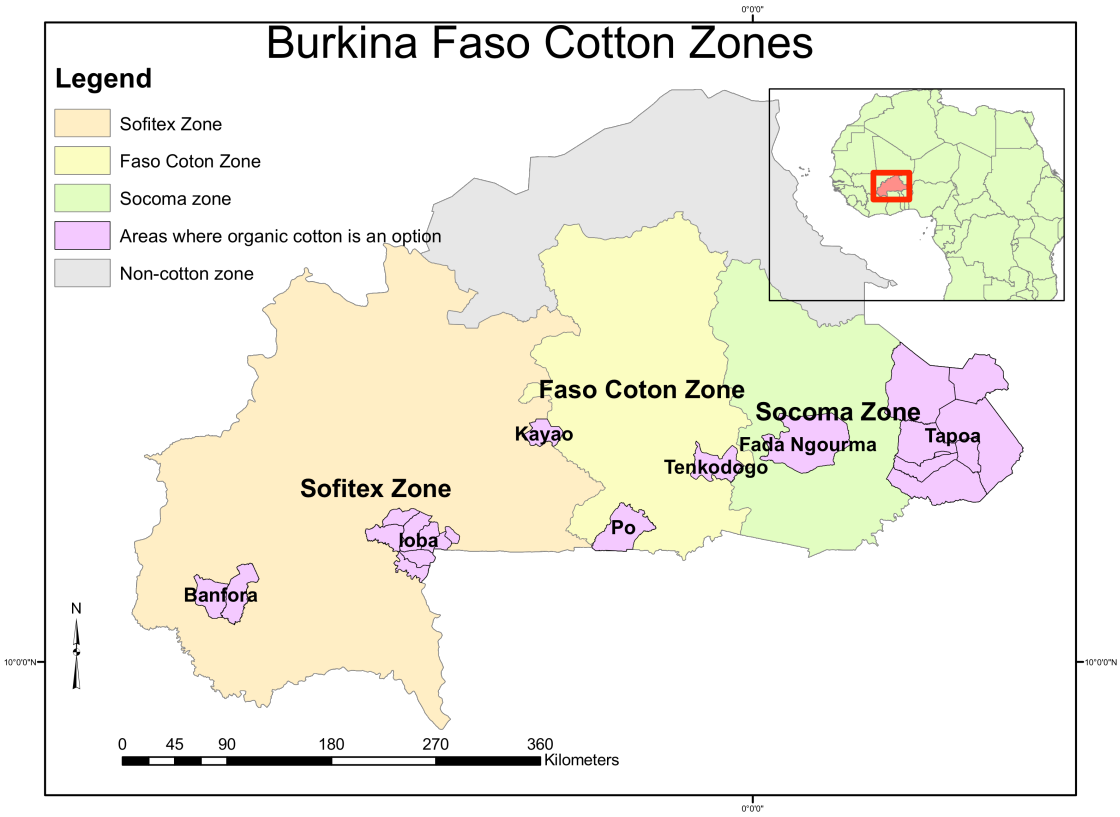

Figure 2: Burkina Faso's cotton company zones and the areas where the UNPCB/Helvetas organic fairtrade cotton project areas are an option for growers. Source*:* compiled by author.

The Helvetas initiative had to acquire consent from the three cotton companies because the companies retain tight legal control over cotton production in their respective zones. The network relations in the sector correspond to the *hierarchical* value-chain model described above (see Gereffi, *et al* 2005). This structure's value chain was modeled after the governance structure that the *Compagnie Française pour le Développement des Fibres Textiles* (French textile development company, or CFDT) set up to control the cotton supply chain in an interlocking credit-laborer relationship across much of French West Africa from the 1950s through the 1980s (Bassett 2001). Since the creation of the *Union Nationale de Producteurs de Coton Burkinabé* (the National Cotton Producer's Union, or UNPCB) in 1998, cotton sector reform began to allow for some producer representation and participation in farm gate price negotiations (Padeco 2006). However, the monopsonistic cotton companies continue to dictate production decisions and control the marketing of all cotton production in the zones except for organic cotton.

With the advent of the organic program, Helvetas played key roles in directing, marketing and establishing contracts with certified partners. It also trained and recruited

extension agents, established input supply channels, and cultivated partnerships with the ginning and trading companies. The agreements between the conventional ginning firms and the UNPCB and Helvetas placed most of the organic cotton in a *captive* commodity chain, (figure 3).

Organic cotton captive in the conventional sector

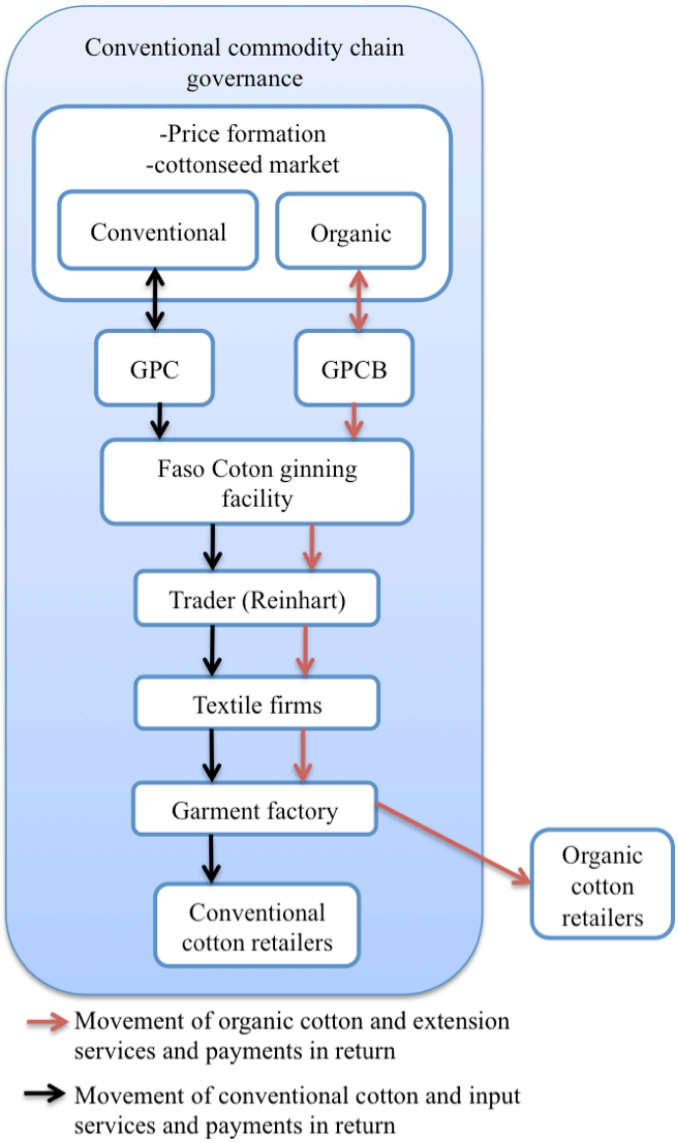

Figure 3: Organic cotton captive in the conventional cotton sector (2004-2008); Source: adapted from Bassett (2010b)

While the organic fairtrade movement has challenged conventional and intensive agricultural practices, it has an opposing force of a monopsonistic governance structure that has ultimate control over organic cotton's expansion. Since 2004, the cotton sector's path to privatization has been in the form of zoned monopsonies. It is necessary to investigate what a zoned governance structure means for individual organic farmers, organic farmer cooperatives and the national organic cotton program itself. To do so, this section uses the commodity chain typology from Chapter I to characterize how and where cotton companies hold control over this "alternative" product. How does the zoned and hierarchical governance structure reinforce the hemmed in nature of this sustainable development[13] initiative within Burkina Faso's wider cotton sector?

[13] In this thesis, *sustainable development* refers to the "successful reconciliation of economic development, environmental conservation, and social equity" (Bassett 2010a).

The organic cotton chain from 2004-2008

When Helvetas first introduced the organic fairtrade program in 2004, for the first four years its value chain tended toward the *captive* type. Helvetas depended on the lead monopsonies for its transactions, particularly in the ginning and trading links in the value chain. Since Helvetas and the UNPCB worked to coordinate organic cotton development across all three cotton zones, they maintained relative control over the chain, so a *hierarchical* value chain did not readily apply.

Keeping the organic fairtrade cotton physically separate from non-organic cotton was and continues to be required for organic fairtrade certification. Certification standards set by the Fairtrade Labor Organization (FLO) and Ecocert (the certifying regulators) stipulate that organic cotton be handled separately from conventional cotton so as to prevent contamination from occurring (FLO 2009). However, with no permanent alternative supply chain that existed exclusively for Burkinabé organic cotton, Helvetas established its partnership with the recently privatized cotton company, Faso Coton to gin all its cotton. It also formed a principal trade agreement with the majority owner of Faso Coton, Reinhart AG, an international cotton trader that also handles conventional cotton. This resulted in a *captive* organic cotton commodity chain that closely resembled the conventional commodity chain. Figure 3 shows how both the conventional and organic cotton move – albeit separately, indicated by the black and red arrows – through the same ginning firm, trader, textile firms and garment factories as the conventional cotton. Price formation and the cottonseed market are also important captive links discussed in the next section. As a result of the converged organic and conventional supply chains, this model for the first four years failed to challenge the chain that indebts farmers; instead, it embraces it. Given the difficulty of establishing an alternative supply chain, Helvetas and the UNPCB were forced to begin the organic program in a *captive* value chain governance (represented by the shaded blue rectangle in figure 3), as opposed to the *relational* type, typical of new fairtrade value chains. Only after setbacks were Helvetas and the UNPCB able to develop more direct network relations between producers and consumers.

The organic cotton chain from 2008-present

During the first four years of its operation, Helvetas transferred most of the management authority over the organic program to the cotton producer's union (UNPCB). In 2008, Faso

Coton and Reinhart terminated their contract to gin and trade the organic cotton, and they stopped providing financial support to train organic extension agents (Helvetas 2007a; Personal communication, Faso Coton, 7 July 2010). Due to a drop in demand after the 2008 global financial recession, Faso Coton saw the partnership as unprofitable because it was a burden to keep bales of unsold organic cotton in their facility. The demand has since bounced back and all the cotton bales have buyers. Unfortunately, the organic fairtrade program lost significant financial support for training extension agents and other shared production costs. The event opened up a necessity for the UNPCB to seek contracts with buyers directly instead of through Faso Coton. As a result, the Burkinabé cotton companies experienced a loss of control over the organic cotton. They have since begun to tighten authority over the upstream links in the chain, where the captive commodity chain continues to limit organic cotton's expansion capabilities.

Four upstream links have come to result in a *captive* commodity chain: the determination of a producer price, the cottonseed market, the organic producers, and the cotton ginning. These upstream links are legally, politically and geographically tied to the conventional cotton chain where formal and informal governance play a major role shepherding the specialty cotton through the supply chain. Meanwhile, the UNPCB developed the downstream links into a more autonomous chain network. The direct relationship and dialogue between buyers and producers characterize a relational value chain (Gereffi, *et al* 2005). A discussion of this *relational* chain follows an introduction of the upstream captive links that restrict expansion of the organic program.

Producer price formation

The producer price for organic fairtrade cotton is significantly higher than for conventional cotton, yet the basis for the formation of the higher price is set by the same components that form the conventional price. For smallholder producers the primary attraction of the organic alternative is the price they receive for certified cotton. Organic fairtrade producers receive a double premium for organic fairtrade cotton, which the Fairtrade Labelling Organization (FLO) sets. The first premium is the minimum fairtrade price for organic cotton that is higher than the base fair trade price for fairtrade non-organic cotton. The second is the "development premium" paid to a farmer's fairtrade cooperative. Since 2008, the organic base price was 272 West African Francs (Fcfa)/kg, and the development premium was 34 Fcfa/kg

each (FLO 2009; Helvetas 2007a; 2007b). The development premium is intended for social and economic investments for the grower cooperatives to use; it sometimes goes toward building schools or other infrastructure in the local area (FLO 2009).

In 2010, the price received for this doubly certified cotton was 106 percent higher than that for conventional and Bt cotton in Burkina Faso (Bassett 2010b). However, the premise on which the Fairtrade Labelling Organization decides the base price is not as transparent as may be expected of a fairtrade commodity. The fairtrade price is set using the Free on Board (FOB) cost, an estimation of the cost to get the cotton from the field to the point of export. Setting this administerial price is highly contentious. Negotiations between growers and cotton companies to set the FOB price is fraught with frustrated growers who demand more openness about the costs of ginning, transport and marketing, which they suspect that the cotton companies grossly overstate (Bassett 2010b). Thus, the goals of the fairtrade and organic system to practice transparency throughout the commodity chain appear to be compromised at the outset.

Cottonseed market

A second captive link in the organic cotton chain is the cottonseed market. This is where the conventional cotton companies manifest their authority over the information that producers receive about cotton production options (i.e. Bt, conventional and organic). A network of relations and informal governance underlies the cottonseed market where information circulates among cotton producers and the various cotton sector actors (see Henderson, *et al* 2002). In the cottonseed market, producers attend regional general assemblies where they receive information concerning the producer price, the prices of conventional and Bt seeds and inputs, and opportunities about conventional, Bt and organic cotton. The producers also have opportunities to give feedback and ask questions to UNPCB and cotton company representatives. The representation of the organic program in regional general assemblies depends on permission that a cotton company gives to Helvetas and the UNPCB so they can introduce or continue the organic project in a given district within a cotton company zone. The implications for the organic cotton program are that the cotton companies ultimately control how much information, if any, producers receive about the organic program (Henderson, *et al* 2002).

Social relations among supply chain actors also demonstrate the ways in which the three cotton companies Sofitex, Faso Coton and Socoma reassert their power in informal ways. It is

not uncommon for cotton chain actors in Burkina Faso to conduct themselves under a sort of informal governance where individual interests of elite actors trump the interests of their own organizations (Dowd 2010). In Burkina Faso, this exists in the form of tensions or *quid pro quo* negotiations around market access that play out through the dynamics of social relationships between the UNPCB, cotton companies, and international actors (Dowd 2010). Dowd cites examples of international seed engineering companies that promote the use of genetically modified cotton seed by paying the airfare and per diems of cotton companies and UNPCB officials – per diems which rival monthly and even yearly salaries. Thus less influential and less bankrolled actors like Helvetas are handicapped in their ability to similarly promote and nurture an approach like fairtrade organic cotton. Indeed, the expansion of organic cotton projects depends on the support of state governments and national agricultural research institutions like Burkina Faso's INERA (*Institut de l'Environment et de Recherches Agricoles*).

Cotton fields

The cotton field is the key link where Sofitex, Faso Coton and Socoma hold captive the organic cotton commodity chain. It is the space where the cotton companies exert definitive control over a producer's choice to enter into this alternative market. Normally, a captive value chain consists of producers that rely on the lead firm for logistical and technical support (e.g. agricultural extension and cotton ginning). Contractual agreements subsequently bind producers and buyers to perform these services (Gereffi, *et al* 2005). However, no contractual guarantee to buy the organic cotton exists between Burkina's three cotton companies and organic producers; and moreover, privatization of the Burkinabé cotton sector has unfolded so that the three cotton companies have jurisdiction over any cotton production that takes place in their zones (Burkina Faso 2007). Since cotton companies do not buy organic cotton from organic producers, and yet have jurisdiction over them legally, the cotton companies have the authority to terminate organic projects in villages or entire regions – that are located in an area they deem necessary for enhancing (profitable) cotton production (Burkina Faso 2007). The Findings section in Chapter III will elaborate how Faso Coton and Socoma acted on this authority, eliminating organic cotton production in the Pô and Tapoa regions.

Cotton ginning

The last captive link in the organic cotton commodity chain is at the ginning facility where the gins separate cottonseeds from the cotton fiber, or lint. The organic program lacks sufficient capital to build and operate its own gin, so it has contracted the job out to Sofitex following Faso Coton's termination of their ginning and trading partnership in 2008. Due to converging commodity chains, the care and time required to adhere to the separation standards can be a burden for conventional ginning firms. Before organic cotton can go through the gin, operators shut down the facility and facility workers clean any and all conventional lint that would cause contamination (Beattie, 2006). This is costly to the organic program in terms of financing and negotiating the dynamics of control over the organic cotton with Sofitex. Such a convergence of the commodity chain carries implications for how much sway the organic program has within the sector, where delays in processing can mean missed opportunities to meet market demand, thus opening opportunities for elite actors to ask that their deals be sweetened (Beattie 2006; Dowd 2010).

In sum, the captive commodity chain links indicate the insecure position of organic cotton within the conventional cotton sector in Burkina Faso. It is through organic cotton markets and control over farmer enrollment that the captive nature of the program constrains its capacity to expand. The captive chain is able, ultimately, to dominate further expansion, casting into question the program's position as a stable alternative for farmers. As the organic cotton chain governance begins to separate from the conventional chain, *relational* commodity chain characteristics dominate the network relations.

Towards a relational commodity chain governance downstream

An alternative *relational* governance structure emerged in Burkina Faso when Victoria's Secret, the US lingerie company, developed a direct marketing relationship with the UNPCB. The agreement commits Victoria's Secret to buy 600 tons of the country's organic cotton crop annually (USAID 2007). This is an unprecedented step in that the retailer has contracted its largest supplier, MAS Intimates based out of Sri Lanka, to buy directly from the organic cotton growers (Bassett 2010b). Through the agreement, the UNPCB performs the entire coordination of the program including agricultural extension, ginning, transport and marketing. Their arrangement leaves the conventional companies out of major profit reaping commodity chain links because of the direct contact with the end user, Victoria's Secret. Following the global financial recession in 2008, when Faso Coton and Reinhart terminated their contract with the organic fairtrade cotton program, the UNPCB modeled new agreements after their partnership with Victoria's Secret. As a promising step forward for the autonomy of the organic cotton program, the UNPCB now

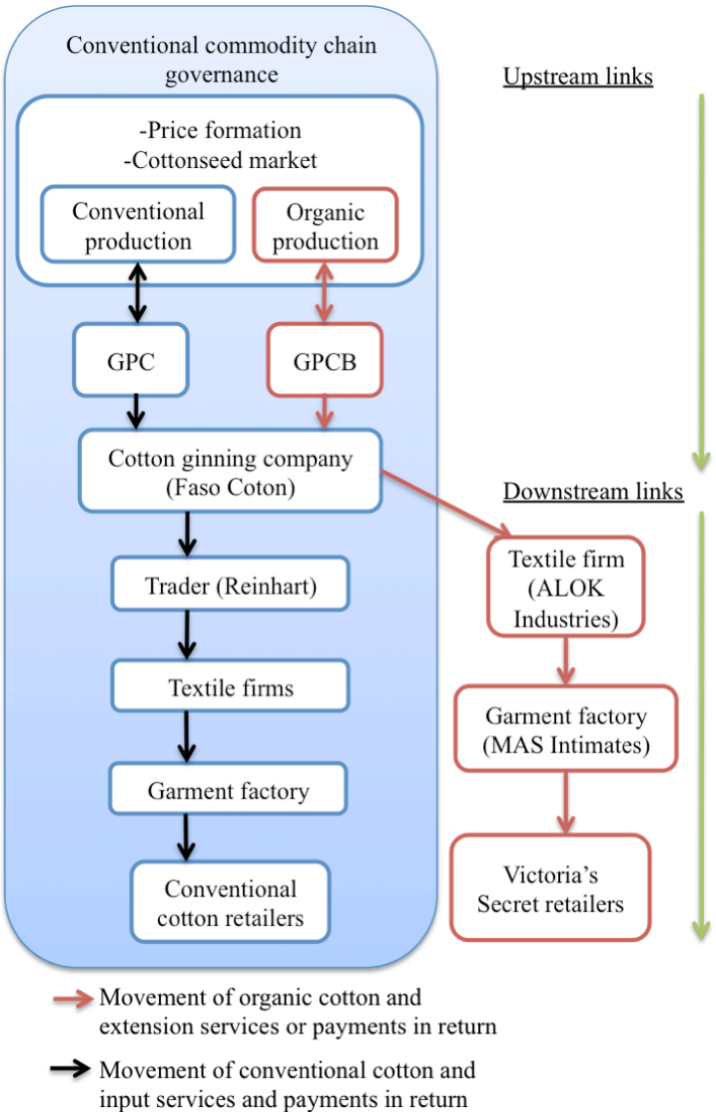

Figure 4: The hybrid captive and relational organic cotton commodity chain (2008-present); Source: adapted from Bassett (2010b)

seeks new agreements directly with all their buyers and subsequently coordinates the commodity chain (Figure 4).

This turn of events represents a shift towards a *relational* commodity chain in which cotton producers (via UNPCB) and buyers are in direct contact. As a result, the program can more easily adapt and is responsible for its own operations; the large firm does not exercise nearly the full control over the organic cotton chain downstream as in the more captive and hierarchical conventional cotton commodity chain upstream (see Raynolds and Wilkinson 2007). However, the special case of Burkinabé organic cotton exhibits more autonomy and relational chain links only once the cotton leaves the field and the ginning facility; prior to that point the cotton companies continue to hold onto key elements of control over the program. In figure 4 above, the captive links are located in the shaded blue box to indicate that the conventional cotton companies permit the organic program to operate. Once the links jump outside of the captive governance, relational governance dominates. Thus, the post-2008 organic cotton commodity chain resembles a hybrid captive/relational commodity chain.

This initiative from Victoria's Secret is the closest example of an alternative supply chain that exists for Burkinabé organic cotton growers. Cotton companies, aware of the attraction growers have to organic cotton, have nevertheless tried to subsequently thwart the organic cotton initiative and kept willing producers from participating in the program. Cotton companies see the initiative as a threat to their dominant control over the cotton grown in their zone because organic growers no longer depend on the input-credit and marketing system. If more partnerships between retailers and the organic cotton sector emerge that threaten the conventional cotton sector's market share, the cotton companies may continue to oblige the UNPCB to terminate organic cotton projects in other established zones.

The role of the UNPCB

The role of the UNPCB is integral to the organic program's expansion as it maintains its newfound footing in the relational chain links and as it improves agricultural practices. The partnership born out of the fairtrade and organic program was and continues to be one of a transfer of responsibility from Helvetas to the UNPCB, so as to increase the organic program's independence. The transition has been successful, turning Helvetas into a background partner that provides mainly financial and technical support. The UNPCB manages issues pertaining to

the upstream, grower and extension agent side of the chain governance and the downstream buyer side of it.

The teaching relationship between an organic extension agent and a cotton grower is a key channel for the production and reproduction of knowledge about good agricultural practices in general. Cotton companies that see the organic cotton program encroaching on their monopoly of control over knowledge about cotton production (i.e. the practice of using pesticides, fertilizers, rotation patterns) threaten their market share yet again. The role that the UNPCB extension agents play takes away the necessity to rely on the inputs that the conventional farmers must use on their fields. Extension agents enable farmers with the skills to improve yields on all their crops and the knowledge to make their own decisions surrounding cotton cultivation. The opportunity and the awareness that conventional, input-intensive farming is not necessarily the only way to grow cotton is intriguing for cotton growers. It has indeed pulled farmers away from conventional and into organic cotton cultivation.

Further downstream, the UNPCB now conducts the search for new buyers and the general management of the organic cotton through its certified commodity chain. Since 2007, the agreement between Victoria's Secret and UNPCB commits the former to buying 600 tons of the country's organic cotton production, which can amount to the majority of the entire crop (USAID 2007). Without question, this partnership enhances the security of the fairtrade and organic program, as long as that agreement continues. A recent news article (Barman 2010) points toward further developments in which ALOK Industries, the Indian spinning and weaving firm and Victoria's Secret partner, intends to build a factory in Bobo Dioulasso, in the heart of Burkina's largest cotton producing region. Industrialization of this type has so far not taken hold in Burkina Faso, which historically exports virtually all its lint cotton to be spun into fabric and clothing elsewhere, usually China and Southeast Asia (Perret and Bossard 2006).

The partnership with Victoria's Secret has been an impetus for UNPCB to develop an alternative supply chain. The UNPCB has since sought new clients with whom they can negotiate contracts. The UNPCB carries the organic fairtrade cotton through the supply chain, coordinating with Sofitex to gin all of the organic cotton at their factory in Banfora, located en route to the point of export at the port of Abidjan in Côte d'Ivoire. The UNPCB, with approved

trading agents, organizes the transport to Abidjan, at which point the client takes over the maritime freight operations (personal communication, UNPCB representative, 9 July 2010).

Disruptions in the organic cotton program

The efforts to attract more clients are essential to the program's independence, but Faso Coton's withdrawal from the organic cotton commodity chain and the global financial recession have been a setback. The UNPCB concluded that for the program to break even and internalize its costs for training, certification, and operations, organic cotton production must reach 3,000 tons. While in the first 4 years, the growth was tremendous, beginning with 72 producers and 12 tons of cotton to 8,362 producers and 3,353 tons in 2008, the 2009 season marked a reversal with just 3,036 producers producing 1,063 tons of organic cotton. The sharp decline after 2008 coincides with the termination of contract with Faso Coton and Reinhart as well as the 2008 introduction of genetically modified (Bt) cotton to Burkina Faso. All regions, except Kayao, which had an increase of 12 producers, experienced a severe drop in or elimination of participation. Faso Coton and Socoma discontinued organic cotton in the Pô and Tapoa regions in order to expand Bt (and conventional) cotton production. As a result, aggregate yield and participation fell significantly for the organic program. The province of Pô in the central zone under Faso Coton had been a major producer of Burkina's organic cotton crop, contributing 633.5 tons, or 19 percent of the entire organic crop in its final 2008 season. Tapoa, only a year into its organic program in the east under Socoma produced substantially fewer tons of cotton, weighing in at 55.6 tons. This poor performance was due in part to it being the first year, but also because Socoma was unable to supply the amount of cotton seeds that the organic

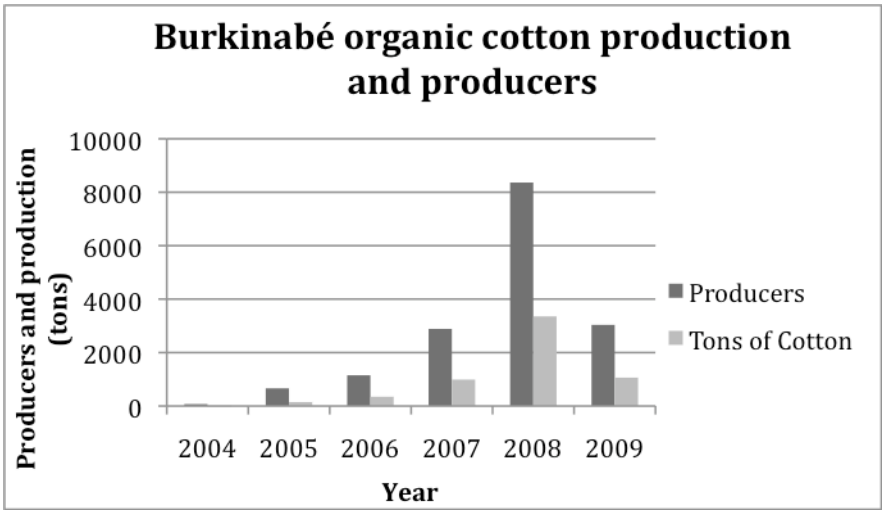

Figure 5: Organic and fairtrade cotton production and producers in Burkina Faso. Source: compiled by author from Helvetas (2004-2009)

producers ordered (Helvetas 2008). Both Pô and Tapoa no longer participate in the organic cotton program. They are now limited to the other organic rotation crops, such as sesame, Shea nuts, hibiscus, and soybeans that Helvetas and UNPCB have been promoting (personal communication, Helvetas director, 22 Oct. 2010).

Market demand from niche consumers in the North does not fully explain the disruptions that the program encountered after its initial period of robust growth. The final chapter turns to the investigation of how and why the agroecological environment and cotton sector governance limit the organic program.

Chapter III – Discussion and Conclusions

Findings

The questions for this research investigate, first, the decisions that growers make to either join or not join the organic cotton program and, second, the implications of working in the geographic zones under cotton company control. The first sub-section puts a human face on the agroecological benefits and constraints discussed earlier. Despite the small number of organic cotton growers across the country, the benefits they enjoy are nonetheless real. The second section presents important elements in our understanding of the zoned cotton chain governance structure in Burkina Faso.

Assessment of the demand to grow organic cotton

Field research in the Ioba province of Burkina Faso included visits to cotton growers and their fields in several villages around Dano to assess the demand for growing organic cotton. Tambiri, Complan, and Kpai were the study sites.

The process of joining the organic program is as follows. First a farmer must pay a 2,000 Fcfa ($2) registration fee. Second, an extension agent visits the farmer's field to assess and make sure it passes the certification standards. Third, the farmer then joins the village Organic Cotton Cooperative (*Groupement de Producteurs de Coton Biologique*, or GPCB) in his or her village and learns from the organic extension agent and GPCB *relais*, an experienced organic grower, what regulations s/he must follow and what farming techniques produce the best results.

Some farmers must wait through a conversion period of three years if they cultivated their chosen field with conventional cotton in the previous three years; however, many farmers are able to rotate their subsistence fields – which are non-treated – to immediately begin organic production. The growers use techniques that have produced benefits for the whole farm system thanks to higher yields for the rotational crops that succeed cotton the following couple years. Crop rotation is a requirement for certification because it improves soil quality. Nearly all of the organic farmers and GPCBs interviewed noted that using organic compost and pesticides increased their yields for the 2-3 years of rotational crops that followed the organic cotton

planting. The residual effect of compost from past years' fields and food scraps is essential to soil quality and yield of the organic crop. The farmers found this skill beneficial for the entire farming household because it recycles nutrients back into the soil.

The organic growers also noted that they appreciate the democratic process that gives them a voice in agricultural practices. Cyrille Kamboulé, an organic farmer from the Complan GPCB, said that throughout the process of learning the best management practices, the farmers have more solidarity than in a conventional cotton cooperative (Personal communication, 19 July 2010). When asked how the organic program managed to operate in a democratic and equitable manner, as in the organic fairtrade certification principles, the organic producers acknowledged that there is more transparency and cooperation within the cooperatives and when communicating with the UNPCB and extension agents. For example, if a method is inconvenient or ineffective for growers, extension agents listen to grower feedback and adapt the program accordingly. Additionally, the methods that the growers employ align well with their principles, while conventional cotton methods, such as obliging growers to buy fertilizer and use harmful pesticides, go against the principles of several interviewees. In one conversation with the Tambiri GPCB, the producers expressed the feeling that the mere use of harmful insecticides is "undemocratic" because it kills everything, including the helpful insects (Personal communication, 21 July 2010). They alluded to an idea that all living things have a right to be useful in their natural ways, like bees and pollination. In a culture that lets nothing go to waste, this organic system – making compost out of weeds, manure and other organic materials – aligns with their wants and needs. The use of an insecticide that kills indiscriminately goes against their mindset to value the utility of their natural resources, i.e. the soil, bees, animals that contribute to decomposition.

Arguably the most significant impact the program has had on farmers is financial. One female producer, Micheline Dabiré, said that she and her husband, another organic grower, paid off their debts worth 250,000 Fcfa ($500) incurred from conventional cotton growing (Personal communication, 1 August 2010) with the organic cotton earning. Now, they have begun putting more money toward food and healthcare for the family. Other farmers were able to purchase farm equipment, donkeys, and oxen thanks to their organic cotton income. Significantly, the fact that women have taken up this organic cotton initiative has given them more negotiating power within the household. Since organic certification requires that a woman receives her payments

directly and not through a male family member, she controls that income. The women interviewed were proud that they were able to pay their children's school fees and invest in plows, oxen, and other equipment to better manage their future farming endeavors. In fact, one women proudly brought out her 11-year-old daughter's past report card to show her satisfaction.

Another organic grower from Complan said that he was happy to plant organic cotton without the need for costly inputs. If it happens that a season lacks sufficient rainfall at the right times, resulting in lower yields, there is significantly less loss in terms of debt for his household. In fact, the soil is more fertile for next year's crop. The fairtrade premium worth 34 Fcfa/kg ($0.07/kg) also goes toward community projects or needs that the GPCB decides together to address. The Complan GPCB built the small shed seen in figure 6 located near the Complan marketplace. They store seed orders, neem and other organic pest control materials, and stools for their meetings there. With the money received for the 2010 season, they hope to have enough to make improvements to the school kitchen or make improvements to the entire school, which the cooperative has discussed with a local NGO with whom they would collaborate.

Figure 6: The shed that the Complan GPCB built for storing seeds (sesame, cotton, soybeans, etc.). Writing on the door says, "*Magasin coton bio. GPCB de Complan*" (*Organic cotton storehouse. Complan GPCB*)

Given these benefits, the program has attracted a growing number of adherents in Ioba since 2004, beginning with 26 producers and 1 ton of seed cotton, and peaking in 2008 with 3,034 producers and 1,300 tons of seed cotton (see figure 7). In 2009, participation dropped to 1,367 producers and 420 tons of seed cotton, due primarily to the loss of Faso Coton's financial

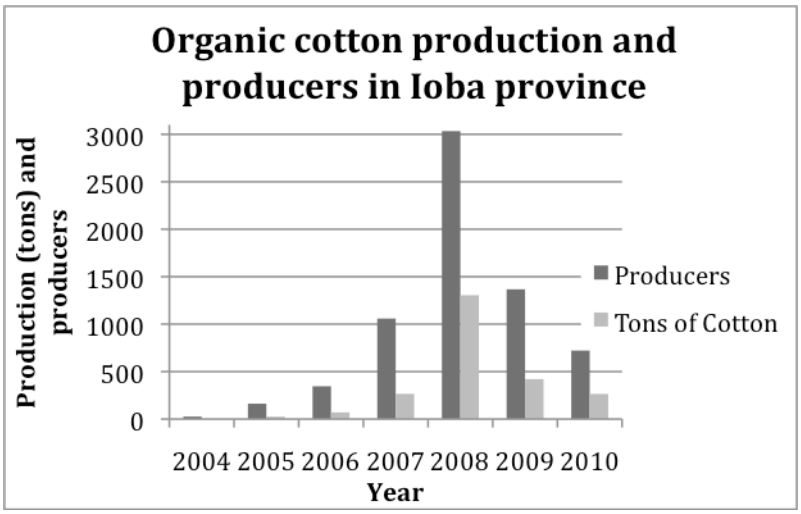

Figure 7: Production and producer data for the Ioba province from 2004-2010. Source: compiled by author from Helvetas (2004-2008, 2010)

support to train extension agents (Helvetas 2007a). As the 2010 season develops during the time of writing, the number of producers in Ioba declined further to 722 with a projected yield of about 265 tons of seed cotton. The 2010 season's decline is not on account of lacking producer demand, but of disruptions in the seed supply chain. At a national scale, the termination of organic cotton in Pô and seed supply problems, explained below, in Ioba and Banfora have significantly reduced Burkina Faso's organic cotton production because those three regions contribute about 75 percent of the total organic cotton output (see figure 8).

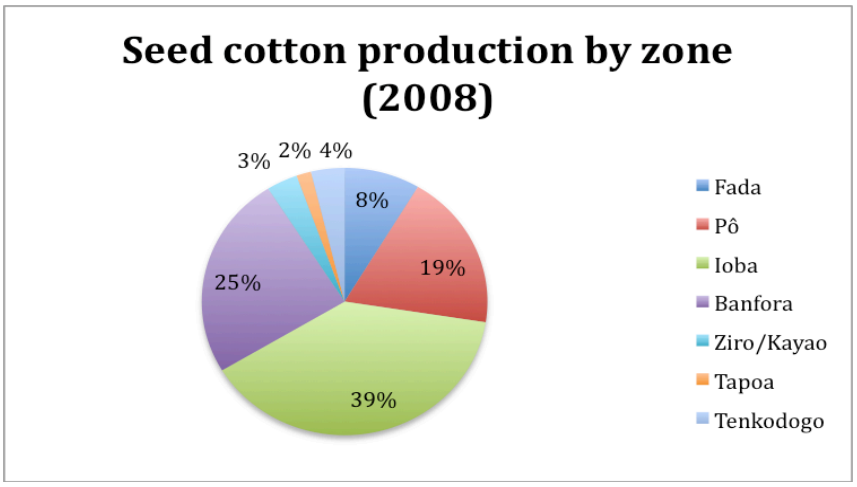

Figure 8: Percentages that each organic and fairtrade cotton zone produced in 2008; Source: compiled by author from Helvetas (2008)

In the 2010 planting season in the Ioba and Banfora organic zones, Bt contamination occurred, not in the cotton fields, but before the producers even received the cottonseeds for sowing. Prior to 2010, the UNPCB had been sourcing untreated seeds from the three cotton companies. Since the public introduction of Bt cotton, the union began, out of necessity, to move toward its own organic seed production. While beneficially forcing further autonomy on the part of the organic initiative, the move was meant to happen in following years when they had built up their cottonseed stocks. When the UNPCB tested the untreated seeds coming from Sofitex for the organic areas in their zones, they found Bt contamination, which prohibited their use. This resulted in a significant lack of seeds in the Sofitex zone for the 2010

growing season. Due to the scramble to distribute what few organically produced seeds the UNPCB had, villages received them later than the ideal May planting dates; Tambiri, Complan, and Kpai received them around June 14th.

In the Ioba district, the total amount of organic cottonseeds that growers ordered was 48 tons, but only 18 tons were delivered and distributed. This devastated the prospects to increase participation and reach new growers. One thousand eight hundred nineteen growers (30 percent female) preregistered to receive cottonseeds, but the contamination left 945 growers without cottonseeds and forced others to reduce the amount they planted. By the end of the sowing season 874 farmers (26 percent female) sowed organic seed in Ioba. That number went down further by August of 2010 to the aforementioned 722 producers as a result of certification violations, most notably insufficient buffer areas between organic and conventional fields.

The contamination and insufficient and late arrival of seeds cast doubt on the program's prospects for reaching all those farmers that would like to participate. For some conventional farmers interested in the organic program, the doubt has influenced their thinking about the program's reliability (personal communication, provincial manager in Ioba 14 July 2010). In a conversation with Issa Somé, a conventional cotton farmer in Kpai, he considered participating in 2009 and inquired about the program, but he was unsure of the methods and thought the certification rules (i.e. 100m buffer and field rotation) were inconvenient. The following year, he inquired about it again, but was discouraged by the late arrival of seeds, increasing his perception of the project's lack of credibility (personal communication, 26 July 2010).

While some conventional cotton producers are not willing or able to make the switch from conventional to organic cotton, the small sample of conventional farmers interviewed for this thesis acknowledged the significant benefits that accrue to those who participate in the organic program. Despite Issa's concerns about the viability of the organic program, his disenchantment with the conventional cotton farming program was evident throughout the conversation. He and other conventional farmers face difficulties primarily when it comes to the costs of agricultural inputs and see few, if any, benefits to conventional cotton production. Conventional producers use three bags of fertilizer per hectare plus one bottle of pesticide, each costing 17,200 Fcfa ($34.40) in the 2010 season; the total cost for one hectare of pesticide and fertilizer inputs amounts to 68,800 Fcfa ($137.60). If he happens to make extra money after

getting paid, he would like to buy an ox, but he usually pays off his inputs that he bought on credit. Issa and other growers (both conventional and organic) also noted that the extension agents in the conventional program give little advice on best management practices like how much fertilizer to apply to fields and how much to space seeds when planting. Instead, the agents' main advice to growers is more often encouragement to simply grow cotton than advice that would produce tangible results. Once the growers have sold their seed cotton, lack of contact between conventional extension agents and producers creates problems because of late payment and lack of agricultural advice. As an expression of the very real difficulties these conventional cotton farmers experience, the conventional cotton growing cooperative (GPC) in Kpai nicknamed their group *la 'manifestation de la suffrance'* ('manifestation of suffering').

Another reason for the unmet demand to grow organic cotton is the decertification of some growers. The most common reasons for decertification include the use of prohibited materials such as chemical fertilizer and chemical pesticides in organic fields, the down slope location of an organic field from a conventional cotton field, or an insufficient buffer between fields of conventional or Bt cotton and organic cotton. A total of 152 producers were decertified in the 2010 season for violations of the organic and fairtrade certification requirements. In some cases where the violated buffer was less than 100m but greater than 30m, extension agents gave growers the opportunity to plant an alternative organic crop, such as soybeans, sesame, or hibiscus. If the field that disqualified the organic cotton is Bt cotton, extension agents advise the grower to plant a high-growing crop like corn between the Bt field and the alternative crop to minimize the risk of any Bt pollen-mediated gene flow (even though it is an entirely different species of plant). Neighboring cotton farmers do, in general, try to avoid locating within the 100m buffer, but evidently, there are cases where farmers, through no fault of their own, get disqualified. There are also cases where it is too late to change crops and the grower can neither sell his/her cotton as organic nor conventional cotton. Sofitex, Faso Coton, and Socoma will not accept decertified organic cotton because it did not go through the proper GPC, nor did it receive proper inputs (Personal communication, Honoré Somda, 29 July 2010). In these cases, the UNPCB and Helvetas search for buyers in larger cities where women's groups may weave the cotton into handmade products for local markets, but finding them is rare (Personal communication, Helvetas director, 9 July 2010).

In conversations with extension agents and the board of the Kpai GPCB, it was evident that the expansion of Bt cotton in Burkina Faso is also a point of concern for certification (Personal communication, 26 July 2010). While the buffer remains the same as in conventional cotton, contamination in the field can never be 100 percent prevented. In recent years, the organic farmers have had to wait for payment for their cotton, in contrast to the first few years when they received payment within two weeks of weighing and sending the seed cotton to the gin. The reason is that the buyers now have to test for any Bt contamination once they receive the product, which can take up to three months.

Furthermore, many farmers appear to have concerns about the impact of Bt cotton on other features of their farm. In a discussion with a group of organic farmers, one farmer voiced concerns about the effects of Bt cotton on oxen (and other animals) that may, between seasons, feed off fields planted with Bt cotton. Other farmers expressed concern over how much truth there is in what the cotton companies tell farmers about Bt cotton – specifically, the benefits – such as fewer pesticide spray requirements – while the potential negatives are either left unmentioned or brushed aside. For example, there have been reports (Dowd 2010; Personal Communication, organic extension agent, 29 July 2010) that fewer seeds relative to cotton lint get produced in Bt cotton. Since producers' revenues are based on weight, most of which comes from the cottonseeds, they receive less money than conventional cotton even though the amount of cotton lint, which is used to spin into cloth, stays the same.

Farmers also receive snide comments from the local directors of the non-organic cotton, who, according to the farmers in the Complan GPCB, joke with them about farming a peculiar type of cotton. This attitude toward the program stems from the institutional setting in which the organic cotton finds itself. Holding such a small portion of the total cotton production, the cotton companies treat organic cotton as both inferior and a threat, which has contributed to the cancellation of organic cotton production in Pô and Tapoa. The next sub-section presents how the institutional factors further hem in the organic program.

Assessment of the implications of working in the zoned governance structure

Archival research and interviews in Ouagadougou, Bobo Dioulasso, and Dano with cotton sector officials, Helvetas and UNPCB representatives, the organic zone director of Ioba,

and extension agents provided understanding of the zoned governance structure of Burkina Faso's cotton sector.

A fundamental element to understanding the zoned governance structure of Burkina Faso was to investigate how the Burkinabé State and other involved actors chose that model. Under direction from a World Bank structural adjustment program dating from 1991, the State needed to privatize one of its largest export sectors, cotton. In the following decade, the State, Sofitex and World Bank actors strengthened farmer organizations and created the UNPCB in 1998 (IMF 2002). The UNPCB began to take over some of the economic duties that Sofitex originally held, including some extension services, management assistance of cotton groups and cotton quality grading, among others (Kaminski, *et al* 2009, Macrae 2002). Other aspects of the reform were more contentious. The World Bank first implemented a non-monopsonistic zoning model during liberalization reforms in Côte d'Ivoire, but in Burkina Faso it favored a fully liberalized cotton sector that would encourage competition. The World Bank did not favor a French Development Agency (AFD) proposal that insisted on implementing regional monopsonies after seeing neighboring countries like Côte d'Ivoire and Benin perform poorly (Kaminski, *et al* 2011). The State wanted to comply with structural adjustment policies, increase export earnings, and curtail political upheaval all at the same time, which explains its long and gradual reform process (Kaminski, *et al* 2009).

The reasons the State chose to divide the sector into *three* zones are less clear. After the inefficiencies and corruption were apparent in the parastatal model, international and national cotton sector actors sought middle ground between full liberalization and parastatal governance (Kaminski, *et al* 2009). Sofitex decided that it would cede the regions of the country with less cotton development and which needed more infrastructure (roads) investment (IMF 2002; Macrae 2002). In 2004, the privatization agreement officially turned the central and eastern zones over to Faso Coton and Socoma, respectively. Considering the French role in parent company-ownership in these two private companies[14], France had interest in implementing the zoned governance structure and seeing reform succeed in Burkina Faso. Sofitex, the Burkinabé government and France sought to avoid any major disruption to credit markets, farmers and local

[14] GeoCoton, which was formerly called the French textile company CFDT and then Dagris, owns Socoma; and Ivoire Coton (the cotton company in Côte d'Ivoire) is the majority shareholder of Faso Coton (Dowd 2010)

and national politics. This also resolved the issue of side-selling, which happened in Côte d'Ivoire when farmers did not sell their cotton back to the company that issued their input credits (Kaminski, *et al* 2009). In an interview with a Sofitex official, he explained that, prior to zoning, the government also explored the privatization of neighboring countries, most notably Benin and Côte d'Ivoire. The exploration concluded that zoned monopsonies would avoid the conflicts that Burkina's neighbors were then experiencing in input and credit markets. In the Interprofessional Cotton Association (*Association Interprofessionelle du Coton du Burkina Faso*, or AICB) reform agreement, Sofitex would continue to hold a dominant position in cotton production leadership, ginning and cotton fiber marketing in Burkina Faso (Burkina Faso 2007; IMF 2002). The three companies, plus UNPCB would form a small, manageable partnership in the AICB so that they could negotiate collective issues like marketing, research, and price stabilization (Kaminski, *et al* 2009).

The creation of the UNPCB spurred a greater presence of the interests of smallholder cotton growers in decision-making positions which is necessary to attempt to counterbalance the cotton sector's monopsonistic governance structure. As a condition for World Bank structural adjustment and an attempt to counteract low producer prices, Burkinabé cotton growers won representation on the boards of each of the three newly privatized cotton companies via the UNPCB (Padeco 2006). The union – representing over 325,000 producers and 12,000 producer groups – now holds a 30 percent stake in Sofitex, 13 percent in Faso Coton, and 13 percent in Socoma (Burkina Faso 2007; Dowd 2010). UNPCB also names eight out of sixteen members to the board of directors of the AICB, which acts as the institution that brings together all cotton sector actors (see figure 8) and whose board sets the purchase price – following a pricing formula[15] – for cotton and agricultural inputs (Burkina Faso 2007). Burkina's cotton industry association, APROCOB (*Association Professionelle des Sociétés Cotonnières du Burkina*) representing Sofitex, Faso Coton and Socoma, names the other six members (Burkina Faso 2007).

[15] The pricing formula is as follows: (the average cost of production for the current year – 685 Fcfa) X the total production of cotton lint from all three companies = the financial volume to be shared among cotton sector actors. Then (financial volume to share) X (50 % of tonnage harvested) = the Purchase price for cotton growers. The pricing mechanism also includes support from a "smoothing fund" that compensates for discrepancies between the pre-harvest set price and world market prices upon commercialization (Kaminski 2009).

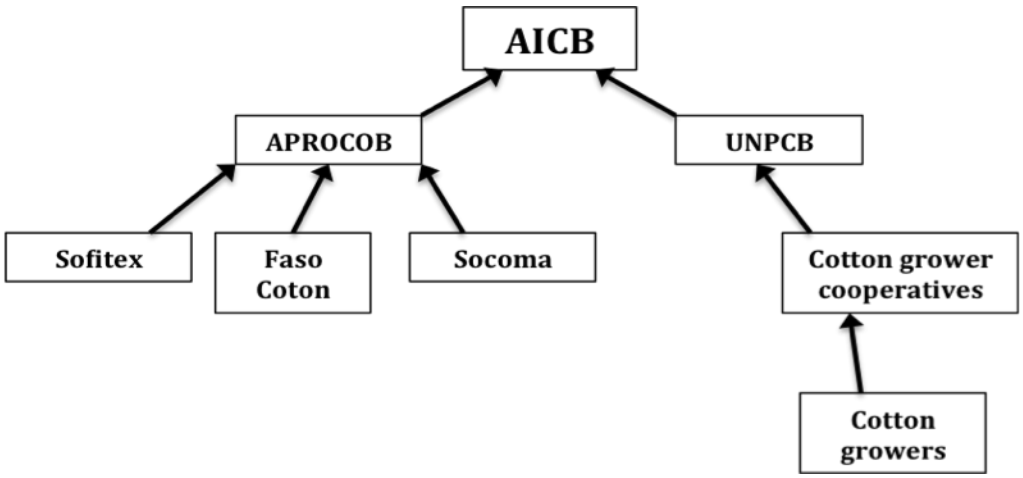

Figure 9: Cotton Sector actors brought together under the inter-professional association for cotton (AICB). Source: compiled by author

Yet, despite UNPCB's equal representation on the board at AICB, the cotton companies still have ultimate control over production in their zones. Decisions concerning cotton production within individual zones are left to the respective cotton company to make, not under the equal representation in the AICB. Particularly in the case of Faso Coton and Socoma, the UNPCB holds relatively little power (13 percent) in each individual company to tip the scales in its own favor. Furthermore, after the 2008/9 season, Socoma and Faso Coton obliged the UNPCB to cease all organic cotton production in Tapoa and Pô respectively, due to the intention of these companies to expand their production of Bt cotton. Both Pô and Tapoa are able to continue organic production of other rotational crops that UNPCB also promotes, such as sesame, Shea nuts, hibiscus, and soybeans (personal communication, Helvetas director, 22 Oct. 2010). However, the organic fairtrade cotton is the most profitable of the crops (organic cotton fetches 272Fcfa/kg while the second top earner, organic soybeans, receives 218Fcfa/kg). Faso Coton and Socoma receive no financial benefit from the organic cotton, instead deriving their profits from increased conventional and Bt cotton, which they gin, market, and export.

When the Burkina Faso government set up the AICB, all involved parties accepted and adhered to the rules set under the *Protocol d'Accord*, or the Memorandum of Agreement, signed in 2004 (Burkina Faso 2007). The agreement prescribes that each cotton company holds general authority over "any property, real estate, industrial, commercial and financial transactions related directly or indirectly to its purpose" in its corresponding zone (Burkina Faso 2007). It further specifies that any authorized companies or intervention (e.g. the organic fairtrade cotton

program) in the zones should operate in strict compliance with the presiding company. Therefore, the organic cotton projects are ultimately subject to cotton company willingness to permit their existence. So long as the projects do not interfere with cotton company efforts to "expand production," the organic program will continue to operate. Since Faso Coton and Socoma produce ten percent each of the total cotton exports in Burkina Faso, the organic program's expansion makes up a higher proportion of the cotton within those zones. As the conventional/Bt and organic programs both look to expand in the future, the organic program threatens the new zones' potential profit more than it does for the Sofitex zone.

According to a director at Sofitex, the future of organic cotton will be limited to small areas that the companies and UNPCB designate as organic-only (Personal communication, 6 August 2010). However, as seen in Pô and Tapoa, this is an uncertainty that could dictate and limit how many producers can benefit from this promising agricultural initiative. Even though UNPCB holds a 13 percent stake in both Faso Coton and Socoma and 30 percent in Sofitex, the UNPCB does not have any recourse when it comes to Faso Coton and Socoma's decision to cease all organic production in Pô and Tapoa. The *Protocol d'Accord* gives cotton companies control over all cotton production in general (personal communication, Helvetas director, 22 Oct. 2010). It is easy for the three cotton companies to deem that organic fairtrade cotton interferes with company profit goals, thus the companies have ultimate authority over it's presence (Burkina Faso 2007). When it pertains to an organic rotation crop that the organic program also markets, such definitive control does not exist because the programs in Pô and Tapoa can still produce alternative crops such as organic soybeans, hibiscus, and sesame seeds.

One way to prevent this type of control from restricting organic cotton production is the creation of an independent organic cotton company that is able to operate freely across the country. However, responses to questions regarding this possibility often pointed to the current limitation of the geographic zones. So long as the zoned governance structure is the law of the land – scheduled until its revision in 2012 – the program must rely on the (diminishing) goodwill of the cotton companies to allow for the alternative cotton to exist. The response from a Helvetas representative was that the question should not be whether or not an organic cotton company will exist – that is highly unlikely; the question is whether the organic cotton chain can take its own place in the national cotton sector – resembling an entirely relational commodity chain. The representative indicated that reaching that goal was more likely through UNPCB's continued

marketing to buyers and expansion of organic cotton production. The director at Sofitex took another view and stated that the only way for the cohabitation of organic and non-organic cotton to occur is to limit the organic zones to specific areas away from the possibility of contamination. Similarly, the coordinator of the organic program at UNPCB sees organic cotton going in the direction of zones (individual villages or groups of villages) that are purely organic. This points to the affirmation of the 'hemmed in' thesis where organic cotton may be limited in the future to islands in a sea of conventional cotton that brings little relief to most struggling cotton farmers.

Results

Throughout the organic cotton program's emergent years, the significant fall in producer participation indicates that the current governance structure is hemming in and shrinking the spaces of organic production. Enthusiasm for the organic cotton program is strong among the farmers interviewed in this case study. Yet many GPCBs had to turn producers away due to contamination of cottonseeds and discontinuation of organic cotton farming in Pô and Tapoa. These instances occur within a larger context. They first point to the dynamics around the agroecological and farm-scale concerns of the program. Second, they provide examples of the zoned control that the conventional cotton sector has over this alternative initiative. These are the limitations through which Helvetas and UNPCB must navigate to continue offering the schemes to villages across the country.

The current environment continues to pose formidable challenges, as the resources required for the program's operation are substantial. The cost of sufficient extension agents to teach the techniques of organic agriculture to participating farmers is high relative to conventional extension agents because much of the success depends on the teaching that happens between producer and extension agent. The agents usually have a *relais*, or knowledgeable representative in each GPCB who assists in field survey tasks and assistance to producers. Even with that relief, the extension model still hinges on the individual visits to each organic plot and farmer to gather necessary information. And the ratio of producers to extension agent is high, giving them an excessive load of farmers to meet and teach and fields to survey. Additionally, expansion to new areas requires sufficient participants to meet an efficient ratio of producers to extension agent so as to avoid training an agent who may only work part time.

Further obstacles face the organic program when some producers are turned away, decertified, or producers begin to doubt the program's viability over time. In the 2010 season, GPCBs in the Dano zone had to turn away 945 of the 1,819 producers that registered for cottonseeds due to the contamination of the seed supply. After the season got under way, extension agents had to decertify 152 producers for violations of the certification regulations, most notably the 100m buffer. While some amount of decertification occurs every season, the project in Dano had not turned away willing producers on a similar scale until that year. The result is a discouraged sample of producers who may choose to continue participation in the debt-ridden cycles of conventional cotton production, even though they rarely see any benefits from it.

While the 100m buffer and other restrictions hem in organic cotton in the field, the alternative sector itself is likewise hemmed in by the conventional cotton. Since the three cotton companies, Sofitex, Faso Coton, and Socoma, have authority over all cotton production that takes place within their zones, they may enforce restrictions on the location of organic cotton production or completely halt it. For Faso Coton and Socoma, whose share of the cotton market falls far short of the former parastatal company, Sofitex, organic cotton production threatened a larger percentage of their own revenue. As a result, they told the UNPCB to cease organic cotton production in Pô and Tapoa in order to expand Bt cotton production. In these areas, the State gave authority – via the *Protocol d'Accord* – to the cotton companies in a way that relinquishes smallholder farmer control over their own land. In this case, the UNPCB failed to represent the interests of the organic producers who wished to continue organic cotton production; instead, it complied with the cotton companies' demands.

In 2012, when the *Protocol d'Accord* comes up for revision, there is little indication that the State will make any significant changes to the current governance structure. Aggregate production puts Burkina Faso continually near the top of cotton production in Africa, and cotton sector privatization has apparently been more successful there than in neighboring West African countries going through similar adjustments (Kaminski, *et al* 2011). So long as the UNPCB works to expand organic cotton production under this governance structure, the alternative development initiative will face the uncertainty of being forced to stop in any given area.

Conclusion

The organic fairtrade cotton program offers a sustainable development approach that promises to improve rural livelihoods through higher incomes and more sustainable farming practices and it encourages more marginalized groups, especially women, to participate in the program. Yet, as this research hypothesized, the governance of the Burkinabé cotton sector impedes cotton growers taking this path due to the monopsonistic zoning in which Sofitex, Faso Coton, and Socoma control cotton production in their respective zone. It is argued here that the organic fairtrade cotton program is essentially doubly hemmed in by both the institutional and the agroecological realities of the cotton sector in Burkina Faso.

Using a global commodity chain framework and conventions theory, this thesis argued that the Helvetas-UNPCB organic cotton initiative did not begin as many fairtrade products typically do, in the *relational* value chain. Rather, the special case of this organic program started out *captive* within the *hierarchical* Burkinabé cotton sector. After the UNPCB developed a partnership with Victoria's Secret in 2007, the downstream links of the value chain eventually resembled a relational network based on mutual dependence, reputation and trust among the relational actors. At the same time captive links upstream tightened under the monopsonistic conventional cotton governance structure via the loss of two organic cotton-producing regions, Pô and Tapoa.

Agroecologically, the organic program faces numerous challenges for producers who find it difficult to procure the necessary capital and inputs to produce organic cotton. But the wider organic sector also faces the expansion of Bt cotton all around the organic plots, threatening many farmers' organic certification.

The investigation of both these dimensions, institutional and agroecological, has identified points along the commodity chain where key actors manifest their authority and agencies. The UNPCB has sought direct marketing relationships with new partners in the North, which challenges the conventional commodity chain. Likewise, Faso Coton and Socoma exercised their authority in the former's termination of ginning and trading contract with the organic program and both companies' forced elimination of organic regions. Their legal authority to do this originates in the *Protocol d'Accord*, which declares that any business venture that interferes with cotton company efforts to expand production is subject to the will of the

cotton company to permit its existence. These actions by the cotton companies have stripped an opportunity from thousands of farmers to join in a program that could raise their standard of living.

Against the backdrop of the upcoming 2012 review of the *Protocol d'Accord*, and as the UNPCB continues its efforts to contract directly with buyers and expand production, a few recommendations are advisable moving forward. In response to a question about the future of organic cotton, discussed above, a Sofitex official suggested the option of creating selected areas (villages or groups of villages) that companies would designate as solely organic cotton – islands of organic areas. The implementation of such an explicitly hemmed in plan assumes that all growers in a given area wish to grow solely organic or conventional or Bt cotton. Enforcement would further prompt opposition because the companies do not recognize the will of the growers. Moreover, despite mention from both the UNPCB and Sofitex representative of this possibility, the cotton companies are unlikely to surrender an entire area for exclusive rights to grow organic cotton because this would go against their business plans to seek maximization of profits. This is why a forum for more equal defense of each cotton sector actor's interests is necessary in the *Protocol d'Accord*.

In practical terms, a democratic forum means strengthening the voice of the UNPCB. In the likely event that the government continues supporting the zoning model in the period following 2012, it is recommended here that the AICB give more representation to the UNPCB at negotiations and in the revised protocol. A more representative voice for the union would enable farmers to take up the type of farming they wish to practice and encourage the organization to be more accountable to cotton growers' interests.

Next, conventional cotton growers can begin to apply some practices of organic agriculture to improve soil quality, have healthier farm households, and higher yields. Indeed, the principles of fairtrade programs encourage such efforts to elevate the standard of living of participants and non-participants. It is advisable that organic extension agents continue to give guidance, when possible, to neighboring non-organic producers as they have done in the past in order to elevate the quality of all Burkinabé cotton.

Third, the role of the UNPCB is important in cultivating new direct contracts with organic fairtrade cotton buyers. Additionally, the planned spinning factory in Bobo Dioulasso

promises to bring further opportunities to Burkina Faso in terms of entering into a new industry that, again, shortens the supply chain and concentrates on building up an industry previously absent from Bobo Dioulasso on this kind of scale.

Lastly, it is unlikely that the Organic and Fair Trade certification organizations would modify their standards to permit genetically modified (GM) traits in the materials they certify, so the question of coexistence between organic and Bt cotton is important, as it is with any organic and GM crop around the world. So far, buffers of adequate distance combined with planting high growing crops between the concerned fields are the best measures to limit cross contamination via pollen-mediated gene flow. These strategies, however, cannot guarantee that no contamination will occur, so it becomes a question, first, of compromise between GM and organic farmers and, second, of tolerance from certification organizations and buying firms. What percentage of contamination are buyers willing to forgive? In Europe, the threshold is 0.9 percent; in some countries, such as Australia, there is a zero-tolerance for GM contamination in organically labeled products (Research Institute for Organic Agriculture 2010, Ecocert 2010). For the cotton crop, given a 100m buffer and the rates of pollen-mediated gene flow described in the Chapter I, a reasonable tolerance for accidental contamination for imports to the US may be one percent, similar to that of the European Union.

The uncertainty that some Burkinabé cotton farmers expressed toward the organic cotton initiative will not go away unless the UNPCB and its partners address the hemmed in nature of production. The UNPCB and Helvetas succeeded in creating producer enthusiasm during the first several years. But as the program grew larger, this enthusiasm began to concern large actors in the cotton sector. Chances for compromise for greater representation of smallholder farmers are higher since the Burkina Faso government put the UNPCB on the boards of cotton companies and in the Interprofessional Association for Cotton, AICB. Similarly, sound agreements with buyers like Victoria's Secret offer greater possible sway in negotiations. More importantly, they enable opportunities to move away from a production scheme fraught with debt towards an initiative where a greater number of rural households can improve their income, farm quality, health, education, and gender status.

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